10/768,174>27/02/2007

=> d his

(FILE 'HOME' ENTERED AT 12:45:55 ON 27 FEB 2007)

FILE 'HCAPLUS' ENTERED AT 12:46:05 ON 27 FEB 2007

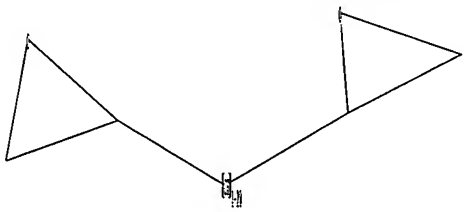
E SCHUERCH C/AU 25

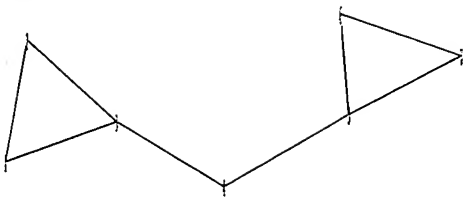
L1 178 S (E3 OR E4 OR E5)
L2 2676594 S ?SUGAR? OR ?GLUCOSE? OR POLYMER?
L3 96 S L1 AND L2
L4 682389 S ?SUGAR? OR ?GLUCOSE?
L5 52 S L1 AND L4
L6 126600 S ?ANHYDRO?
L7 31 S L5 AND L6
L8 2304462 S ?POLYMER?
L9 26 S L7 AND L8

10/768,174>27/02/2007

http://www.cas.org/ONLINE/UG/regprops.html

=>
Uploading C:\Program Files\Stnexp\Queries\174.str



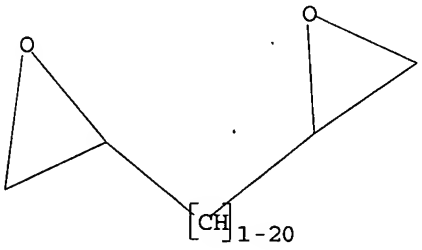


chain nodes :
4
ring nodes :
1 2 3 5 6 7
chain bonds :
3-4 4-5
ring bonds :
1-2 1-3 2-3 5-6 5-7 6-7
exact/norm bonds :
1-2 1-3 2-3 5-6 5-7 6-7
exact bonds :
3-4 4-5

Match level :
1:Atom 2:Atom 3:Atom 4:CLASS 5:Atom 6:Atom 7:Atom

L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

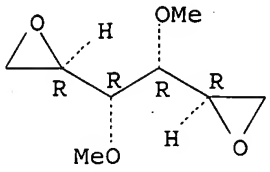
=> s l1 sss sam
SAMPLE SEARCH INITIATED 18:58:35 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 4194 TO ITERATE

47.7% PROCESSED 2000 ITERATIONS 32 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

10/768,174>27/02/2007

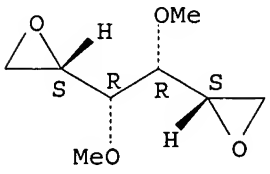
```
FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:         79997 TO    87763
PROJECTED ANSWERS:              851 TO     1833

L2           32 SEA SSS SAM L1
```

```
=> s l3
L4         1381 L3

=> s ?sugar?
L5       338969 ?SUGAR?

=> s l4 and l5
L6           48 L4 AND L5

=> S L6 AND 1800<=PY<=2004
      25014509 1800<=PY<=2004
L7           45 L6 AND 1800<=PY<=2004

=> s l6 and ?dianhydro?
          1446 ?DIANHYDRO?
L8           26 L6 AND ?DIANHYDRO?

=> d l8 ibib abs hitstr

L8   ANSWER 1 OF 26  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2005:1199649  HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER:          144:88474
TITLE:                    Regio- and stereoselective cyclizations of
                          dianhydro sugar alcohols catalyzed
                          by a chiral (salen)CoIII complex
AUTHOR(S):                Satoh, Toshifumi; Imai, Tomoko; Umeda, Satoshi; Tsuda,
                          Katsuyuki; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE:         Division of Biotechnology and Macromolecular
                          Chemistry, Graduate School of Engineering, Hokkaido
                          University, Sapporo, 060-8628, Japan
SOURCE:                   Carbohydrate Research (2005), 340(17), 2677-2681
                          CODEN: CRBRAT; ISSN: 0008-6215
PUBLISHER:                Elsevier B.V.
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
OTHER SOURCE(S):          CASREACT 144:88474
AB   The (R,R)- and (S,S)-(salen)CoIIIOAc catalyzed cyclization of the chiral
     dianhydro sugars, 1,2:5,6-dianhydro
     -3,4-di-O-methyl-D-glucitol (I), 1,2:5,6-dianhydro
     -3,4-di-O-methyl-D-mannitol (II), 1,2:5,6-dianhydro
     -3,4-di-O-methyl-L-iditol, and 1,2:4,5-dianhydro
     -3-O-methyl-L-arabinitol (III), is a facile method for the synthesis of
     anhydro-alditol alcs.  Cyclization of I using (R,R)- and
     (S,S)-(salen)CoIIIOAc proceeded diastereoselectively to form
     2,5-anhydro-3,4-di-O-methyl-D-mannitol and 2,5-anhydro-3,4-di-O-methyl-L-
     iditol, resp.  The cyclization of II and III is a novel method for
     obtaining 1,6-anhydro-3,4-di-O-methyl-D-mannitol and a stereoselective
     route to 1,5-anhydro-3-O-methyl-L-arabinitol.  It is proposed that the
     reaction occurs via endo-selective cyclization of an epoxy alc. produced
     by the endo-selective ring-opening of one of the two epoxide moieties in
     the starting material.
IT   71223-61-5 71223-64-8 71223-65-9
     872517-08-3
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (regio- and stereoselective cyclization of dianhydro
        sugar alcs. catalyzed by chiral (salen)CoIII complex)
RN   71223-61-5  HCAPLUS
CN   D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI)  (CA INDEX NAME)

Absolute stereochemistry.
```



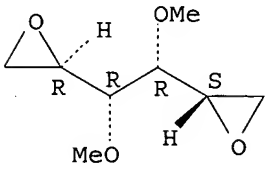
RN 71223-64-8 HCAPLUS
CN L-Iditol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

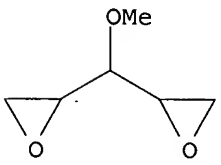


RN 71223-65-9 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 872517-08-3 HCAPLUS
CN L-Arabinitol, 1,2:4,5-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l8 ibib abs hitstr 2-26

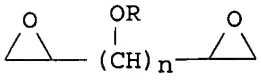
L8 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:756387 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 141:282877
TITLE: Highly branched polymers for biocompatible medical hydrogels and their manufacture from anhydrosugar alcohols
INVENTOR(S): Kaga, Haruo; Kakuchi, Toyoji; Sato, Toshifumi; Imai,

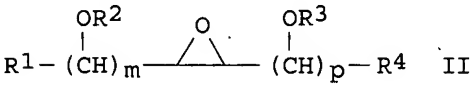
	Tomoko
PATENT ASSIGNEE(S):	National Institute of Advanced Industrial Science and Technology, Japan
SOURCE:	Jpn. Kokai Tokkyo Koho, 16 pp. CODEN: JKXXAF
DOCUMENT TYPE:	Patent
LANGUAGE:	Japanese
FAMILY ACC. NUM. COUNT:	1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256804	A	20040916	JP 2004-27160	20040203
JP 3721389	B2	20051130		
US 2005010023	A1	20050113	US 2004-768174	20040202
PRIORITY APPLN. INFO.:			JP 2003-26406 A	20030203

GI


I


II

AB Title polymers are manufactured by polymerization of (di)anhydrosugar alcs. I and/or II (R, R1-R4 = H, C1-30 hydrocarbyl; ≥1 of R, R2, R3 = H; m 0-20; n = 1-10; p = 1-20; m + p = 1-20) optionally with anhydrosugars in the presence of cationic or anionic initiators. Thus, 1,2:5,6-dianhydro-D-mannitol was polymerized in the presence of BF3 etherate at 0° for 200 h in CH2Cl2 to give 41.8% highly branched polymer, which was soluble in H2O, MeOH, and Me2CO.

IT 603129-00-6P
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(manufacture of highly branched polymers from (di)anhydrosugar alcs. for biocompatible medical hydrogels)

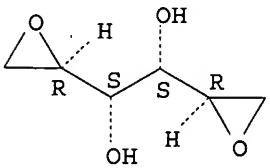
RN 603129-00-6 HCAPLUS

CN D-Mannitol, 1,2:5,6-dianhydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19895-66-0
CMF C6 H10 O4

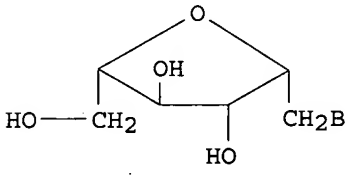
Absolute stereochemistry.



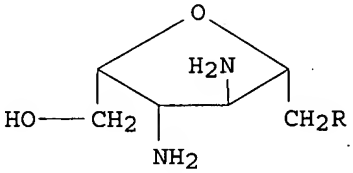
L8 ANSWER 3 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER:	2003:944700 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER:	140:111621
TITLE:	Synthesis of 1'-homo-N-nucleosides from hexitols
AUTHOR(S):	Saladino, Raffaele; Ciambecchini, Umberto; Hanessian,

Stephen
CORPORATE SOURCE: Unita INFM, Dipartimento di Agrobiologia ed Agrochimica, Viterbo, 01100, Italy
SOURCE: European Journal of Organic Chemistry (2003), (22), 4401-4405
CODEN: EJOCFK; ISSN: 1434-193X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:111621
GI



I

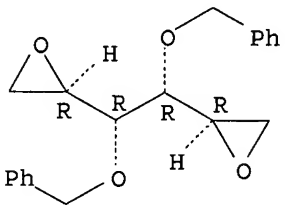


II

AB This paper describes a new route for the synthesis of N-(1'-homo-L-gulitol)nucleosides I (B = Ura, Thy, or Ade) and amino sugar analogs of N-(1'-homo-L-glucitol)nucleosides II (R = OPh, OH, Ade) by nucleophilic epoxide ring-opening followed by O-heterocyclization of 1,2:5,6-dianhydro-3,4-di-O-benzyl-D-mannitol and 1,2:5,6-dianhydro-3,4-diazido-D-iditol, resp. Magnesium perchlorate [Mg(ClO4)2] was found to be the best catalyst for the reaction of silylated bases, derived from uracil, thymine and adenine, with these bis(epoxides).

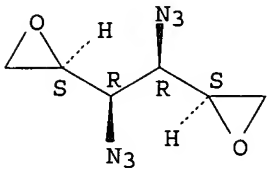
IT 157363-85-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of 1'-homo-N-nucleosides from anhydrohexitols via nucleophilic epoxide ring-opening followed by O-heterocyclization)
RN 157363-85-4 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-bis-O-(phenylmethyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT 647826-13-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of 1'-homo-N-nucleosides from anhydrohexitols via nucleophilic epoxide ring-opening followed by O-heterocyclization)
RN 647826-13-9 HCAPLUS
CN D-Iditol, 1,2:4,6-dianhydro-3,4-diazido-3,4-dideoxy- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:133392 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 138:190524
TITLE: Carbohydrate esters for using as lubricants or hydraulic fluids
INVENTOR(S): Kunz, Markwart; Kowalczyk, Joerg; Haji, Begli Alireza; Kohlstrung, Rainer; Harperscheid, Manfred; Kesseler, Angela; Luther, Rolf; Mang, Theo; Puhl, Christian; Wagner, Helena
PATENT ASSIGNEE(S): Suedzucker Aktiengesellschaft Mannheim/Ochsenfurt, Germany; Fuchs Petrolub AG
SOURCE: PCT Int. Appl., 50 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003014270	A1	20030220	WO 2002-EP8152	20020722
W: JP, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
DE 10138687	A1	20030227	DE 2001-10138687	20010807
EP 1417286	A1	20040512	EP 2002-767243	20020722
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
JP 2004537643	T	20041216	JP 2003-519203	20020722
US 2004242919	A1	20041202	US 2004-486538	20040722

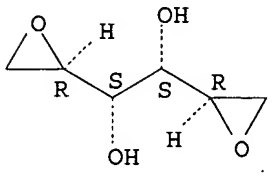
PRIORITY APPLN. INFO.: DE 2001-10138687 A 20010807
WO 2002-EP8152 W 20020722

AB The invention relates to compns. containing mixts. of open-chain and cyclic mols. of the sugar alcs. D-sorbitol and D-mannitol, said mols. esterified by means of ≥1 carboxylic acid(s). Cyclization is done by dehydrating at 80-170° (preferably at 100-170°), and subsequent esterification is carried out at 120-280° (preferably at 160-250°). In both stages, the reaction water is removed by rectification or azeotropic rectification. The products are biodegradable and have high oxidation, thermal, and aging stability. The products are suitable as hydraulic fluids, lubricants, lubricating oils, metalworking fluids, transformer oils, and heat-transfer fluids.

IT 19895-66-0D, Dianhydromannitol, esters with caprylic acid or caprinic acid
RL: TEM (Technical or engineered material use); USES (Uses)
(in biodegradable hydraulic fluids and lubricants)

RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

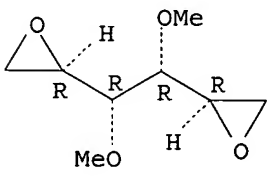
Absolute stereochemistry.



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

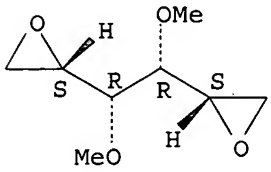
L8 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:396978 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 133:151046
TITLE: Cyclopolymerization of 1,2:5,6-Diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-D-mannitol and -L-iditol Leading to a Novel Thiosugar Polymer
AUTHOR(S): Satoh, Toshifumi; Kitazawa, Daisuke; Nonokawa, Ryuji; Kamada, Masatoshi; Yokota, Kazuaki; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Molecular Chemistry Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Macromolecules (2000), 33(14), 5303-5307
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The cyclopolymn. of 1,2:5,6-diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-D-mannitol and its diastereoisomer 1,2:5,6-diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-L-iditol was carried out using cationic and anionic initiators $BF_3 \cdot OEt_2$, $SnCl_4$, and t-BuOK. The anionic cyclopolymn. proceeded through intramol. cyclization with α-scission and intermol. reaction with β-scission to yield polymers consisting of five-membered cyclic units. The thiosugar polymer structure comprises 2,5-anhydro-1,5-dithio-3,4-di-O-methyl-D-glucitol as the major repeating unit. Although the polymerization rate using t-BuOK was higher than that using $BF_3 \cdot OEt_2$ and $SnCl_4$, the stereoregularity of the resulting polymer was lower.
IT 71223-61-5, 1,2:5,6-Dianhydro-3,4-di-O-methyl-D-mannitol
71223-64-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(mechanism of anionic and cationic cyclopolymn. of 1,2:5,6-diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-D-mannitol and -L-iditol leading to thiosugar polymer)
RN 71223-61-5 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 71223-64-8 HCAPLUS
CN L-Iditol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

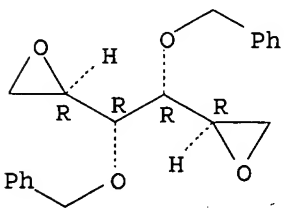
Absolute stereochemistry.



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:323389 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 127:34429
TITLE: A practical approach to the synthesis of dianhydro sugars
AUTHOR(S): Lohray, Braj B.; Chatterjee, Manashi; Jayamma, Yaruva
CORPORATE SOURCE: Basic Research and Drug Discovery, Dr. Reddy's Research Foundation, Hyderabad, 500 138, India
SOURCE: Synthetic Communications (1997), 27(10), 1711-1724
CODEN: SYNCAV; ISSN: 0039-7911
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 127:34429
AB Chiral tetrols derived from various carbohydrate precursors have been converted into the corresponding dianhydro sugar derivs. in a one pot procedure. The course of reaction very much depends upon the protecting groups used. In case of D-mannitol and sorbitol, it has been shown that when 3,4-hydroxy groups are protected as trans-acetonide group, the present methodol. furnished exclusively 1,2:5,6-dianhydro derivs. in excellent yield. However, if the 3,4-hydroxy groups are protected with benzyl group a mixture of products consisting of dianhydro sugar, a furan and a bicyclo[2.2.2]octane derivs. were obtained. This method has also been used to synthesize dianhydro sugars in which the two diol moieties are placed adjacent to each other or separated by one or more carbon atoms.
IT 157363-85-4P 190731-41-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of dianhydro sugars via intramol. cyclocondensation of alditols)
RN 157363-85-4 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-bis-O-(phenylmethyl)- (9CI) (CA INDEX NAME)

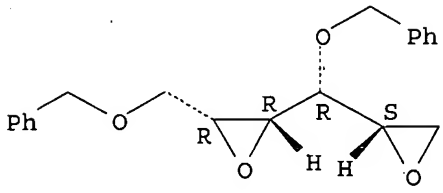
Absolute stereochemistry. Rotation (+).



RN 190731-41-0 HCAPLUS
CN D-Glucitol, 1,2:4,5-dianhydro-3,6-bis-O-(phenylmethyl)- (9CI) (CA INDEX

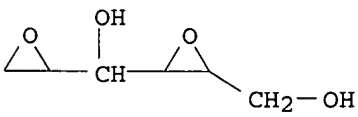
NAME)

Absolute stereochemistry. Rotation (-).

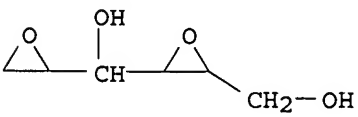


REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:36310 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 112:36310
TITLE: The base-catalyzed rearrangement of dibromo alditols via epoxide migration
AUTHOR(S): Bock, Klaus; Castilla, Ines Maya; Lundt, Inge; Pedersen, Christian
CORPORATE SOURCE: Dep. Org. Chem., Lyngby, DK-2800, Den.
SOURCE: Acta Chemica Scandinavica (1989), 43(3), 264-8
CODEN: ACHSE7; ISSN: 0904-213X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The reaction of 2,6-dibromo-2,6-dideoxy-D-mannitol (I) and -D-glucitol (II) with aqueous base has been studied. With K2CO3, I forms epoxides which are subsequently hydrolyzed to a mixture of D-mannitol and D-glucitol. The same treatment of II yields essentially only D-glucitol. With aqueous KOH, both I and II undergo rearrangement through epoxide migration. Thus, I is mainly converted into 2,5:3,4-dianhydro-L-altritol, whereas II yields 1,4:3,6-dianhydro-L-glucitol. The reactions were monitored using 13C NMR spectroscopy.
IT 124379-07-3P 124379-11-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 124379-07-3 HCAPLUS
CN D-Glucitol, 2,3:5,6-dianhydro- (9CI) (CA INDEX NAME)

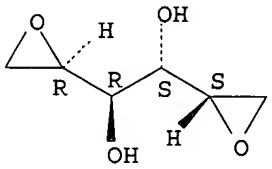


RN 124379-11-9 HCAPLUS
CN D-Glucitol, 1,2:4,5-dianhydro- (9CI) (CA INDEX NAME)



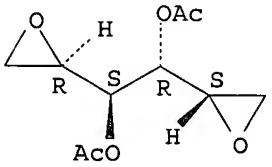
L8 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:589282 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 103:189282
TITLE: Mutagenicity of antitumor sugar alcohol derivatives
AUTHOR(S): Olah, Edith; Sugar, J.; Toth, K.
CORPORATE SOURCE: Res. Inst. Oncopathol., Natl. Inst. Oncol., Budapest, H-1122, Hung.
SOURCE: Proc. Int. Congr. Chemother., 13th (1983), Volume 16, 257/6-257/9. Editor(s): Spitzy, K. H.; Karrer, K. Verlag H. Egermann: Vienna, Austria.
CODEN: 53XPA8
DOCUMENT TYPE: Conference
LANGUAGE: English
AB All of 9 antitumor sugar alc. derivs., dibromodulcitol [10318-26-0], dibromomannitol [488-41-5], Lycurim [4148-16-7], Zitostop [7518-35-6], dianhydrogalactitol [23261-20-3], 3,4-diacetyldianhydrogalactitol [57230-48-5], 3,4-disuccinyldianhydrogalactitol (I) [66913-57-3], 1-bromo-3,6-anhydrodulcitol [82079-63-8], and 1,2-epoxy-3,6-anhydrodulcitol [82049-08-9], elevated sister-chromatid-exchange (SCE) induction in Chinese hamster cells. With the exception of I, all sugar alc. derivs. tested were mutagenic in Salmonella TA 1535. There was a good correlation between the SCE production and the mutagenic response in the bacterial system, but the SCE production was the more sensitive indicator for studying the possibly different mutagenic potential of these chemical related compds.
IT 23261-20-3 57230-48-5 66913-57-3
RL: BIOL (Biological study)
(mutation from)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



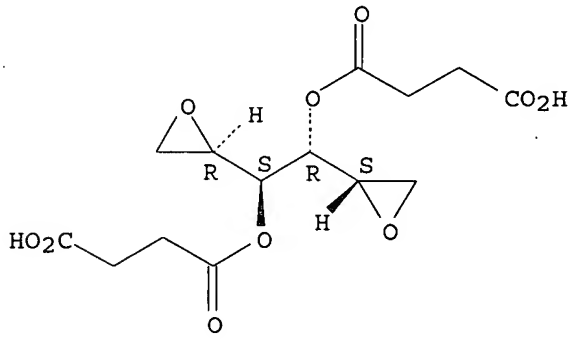
RN 57230-48-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, diacetate (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 66913-57-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate) (9CI) (CA INDEX NAME)

Relative stereochemistry.

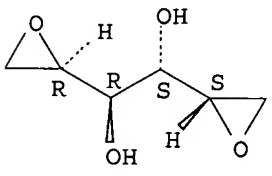


L8 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:571592 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 103:171592
TITLE: Enzymological and morphological changes in rat intestinal mucosa following treatment with alkylating sugar alcohol derivatives
AUTHOR(S): Prajda, N.; Kralovansky, J.; Kerpel-Fronius, S.; Gal, F.; Szentirmay, Z.
CORPORATE SOURCE: Natl. Inst. Oncol., Budapest, H-1525, Hung.
SOURCE: Anticancer Research (1985), 5(4), 451-6
CODEN: ANTRD4; ISSN: 0250-7005
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Rats were treated with alkylating sugar alc. derivs. dianhydrogalactitol (DAG) [23261-20-3] and diacetyldianhydrogalactitol (DiacDAG) [57230-48-5]. The effect of these cytostatic agents was studied on the different marker enzymes (thymidine kinase, xanthine oxidase, alkaline phosphatase, sucrose, maltase) of the separated mucosa cells derived from the functional and proliferating zone of the small intestine. Both DAG and DiacDAG inhibited the enzyme activities of the proliferating and mature enterocytes in a dose dependent fashion, primarily acting on the crypt specific thymidine kinase. The time-dependent sequence in the biochem. alterations correlated well with the cytomorphol. changes. The drug-induced damage was most pronounced 48 h after a single treatment. The regeneration of the intestinal mucosa began on days 3 and 4 and was completed by day 7. DiacDAG at equimolar concentration proved to be more toxic than DAG on the intestine as judged by the significantly higher decrease of protein content and xanthine oxidase activity.

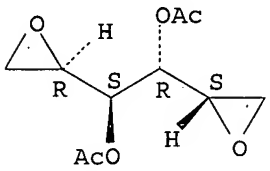
IT 23261-20-3 57230-48-5
RL: PRP (Properties)
(toxicity of, to intestine mucosa, enzyme and morphol. changes in)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



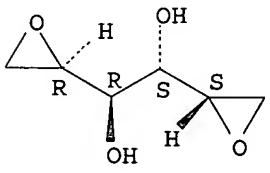
RN 57230-48-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, diacetate (9CI) (CA INDEX NAME)

Relative stereochemistry.



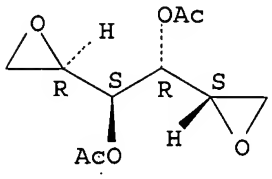
L8 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:142884 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 102:142884
TITLE: Damages of DNA synthesis in normal and tumor cells with sugar alcohol derivatives
AUTHOR(S): Sokolova, I. S.; Elekes, I.; Otvos, L.; Gorbacheva, L. B.
CORPORATE SOURCE: Inst. Chem. Phys., Moscow, 117977, USSR
SOURCE: Neoplasma (1984), 31(6), 667-73
CODEN: NEOLA4; ISSN: 0028-2685
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The rates of incorporation of 2-14C-thymidine into DNA of melanoma B16, bone marrow, gastrointestinal mucosa, spleen and liver at various time after administration of dianhydrogalactitol (DAG) [23261-20-3], 3,4-diacetyldianhydrogalactitol (DiacDAG) [57230-48-5] and 3,4-disuccinyldianhydrogalactitol (DisuDAG) [66913-57-3] at maximum nonlethal single doses to tumor-bearing mice were studied. The sugar alc. derivs. induced the stable inhibition in DNA synthesis of tumor cells. DNA synthesis in normal dividing cells was shown to recover more rapidly than in melanoma B16 cells after administration of all drugs. DisuDAG was characterized by stronger inhibitory effect on DNA synthesis in melanoma B16 cells at the half of the single maximum nonlethal dose compared with DAG and DiacDAG. Unlike DAG, DiacDAG and DisuDAG did not affect the incorporation of 2-14C-thymidine into DNA of liver cells. In vivo inhibition of DNA synthesis in melanoma B16 cells with DiacDAG was not due to damage of the TCA soluble fraction.
IT 23261-20-3 57230-48-5 66913-57-3
RL: BIOL (Biological study)
(DNA formation in normal and neoplastic cells response to)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



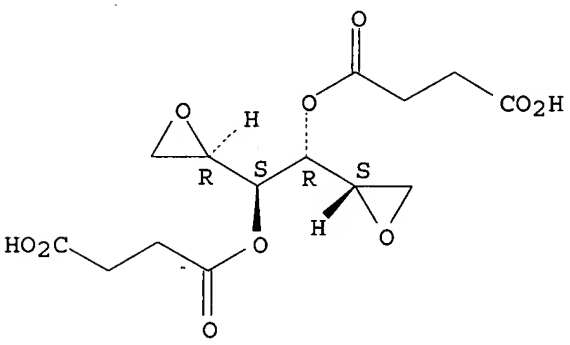
RN 57230-48-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, diacetate (9CI) (CA INDEX NAME)

Relative stereochemistry.

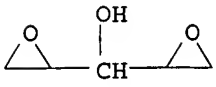


RN 66913-57-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate) (9CI) (CA INDEX NAME)

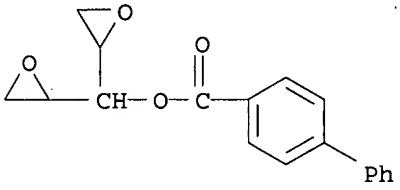
Relative stereochemistry.



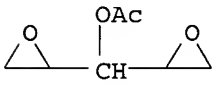
L8 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:432816 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 101:32816
TITLE: Antitumor action of 1,5-dihalo-, and 1,2-4,5-dianhydroxylitol derivatives
AUTHOR(S): Jeney, Andras; Kopper, Laszlo; Lapis, Karoly; Vidra, Laszlo; Institoris, Laszlo
CORPORATE SOURCE: 1st Inst. Pathol. Exp. Cancer Res., Semmelweis Med. Univ., Budapest, 1085, Hung.
SOURCE: Anticancer Research (1984), 4(1-2), 23-5
CODEN: ANTRD4; ISSN: 0250-7005
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The antitumor action of some xylitol compds. possessing alkylating potency at the 1 and 5 positions of the sugar skeleton was investigated. Unlike the hexitol derivs., bi-halogenated xylitols showed no antitumor action. The modest therapeutic index of 1,2-4,5-dianhydroxylitol [63976-13-6] on the NK/Ly ascites tumor could be substantially increased by the addition of a phenyl-benzoyl group at the 3 position. This latter compound appeared to be active against L1210 leukemia, S-180, Yoshida solid sarcoma, and metastasis formation of the Lewis lung tumor.
IT 63976-13-6 72858-47-0 72858-49-2
72858-51-6 78465-34-6
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antitumor activity of, structure in relation to)
RN 63976-13-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro- (9CI) (CA INDEX NAME)



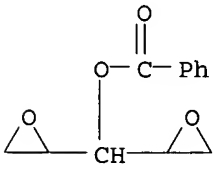
RN 72858-47-0 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, [1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)



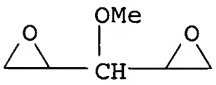
RN 72858-49-2 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, acetate (9CI) (CA INDEX NAME)



RN 72858-51-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, benzoate (9CI) (CA INDEX NAME)



RN 78465-34-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)



L8 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:167789 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 100:167789
TITLE: Effects of some sugar alcohol derivatives on mutation and induction of sister chromatid exchanges
AUTHOR(S): Olah, Edith; Toth, Karoly; Sugar, Janos; Hegedus, Lajos; Somfai-Relle, Susan

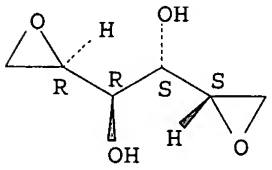
CORPORATE SOURCE: Res. Inst. Oncopathol., Natl. Oncol. Inst., Budapest, H-1122, Hung.
SOURCE: Cancer Research (1983), 43(10), 4530-6
CODEN: CNREA8; ISSN: 0008-5472
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The mutagenicity of various alkylating sugar alc. derivs. in the Salmonella-microsome assay was studied, and the effects of these compds. on the colony-forming ability and the frequency of sister chromatid exchange (SCE) in Chinese hamster cells were determined Cytostatic drugs under clin. trial [Elobromol (DBD) [10318-26-0], Myelobromol (DBM) [488-41-5], Lycurim (LY) [4148-16-7], Zitostop (ZI)] [7518-35-6], others in preclin. anal. [dianhydrogalacitol (DAG) [23261-20-3], 3,4-diacetyldianhydrogalactitol (DiacDAG) [57230-48-5], 3,4-disuccinoyldianhydrogalactitol (DisuDAG) [66913-57-3]], and compds. without any known antitumor effect in transplantable tumors [1-bromo-3,6-anhydrodulcitol (BAD) [82079-63-8], 1,2-epoxi-3,6-anhydrodulcitol (EAD) [82049-08-9]] were examined All the tested compds. except DisuDAG were directly mutagenic in Salmonella strains TA 1535 and TA 1535 and TA 100. The mutagenic effect of the chemical was not influenced by S9 mix from rat liver, with the exception of ZI and DiacDAG. DisuDAG appeared nonmutagenic in strains TA 1535 and TA 100 exposed to microsomal enzymes from rat liver, lung, and kidney and mouse and hamster liver, nor was DisuDAG mutagenic in strains TA 1537, TA 1538 and TA 98 in either the presence or the absence of rat liver S9 mix. Mouse urine, after a single administration of DisuDAG to the animal, proved to be mutagenic in strain TA 1535. This effect can be attributed to the presence of DAG and EAD which could be identified by thin-layer chromatog. of urine, thus establishing the premutagenic character of DisuDAG. All sugar alc. derivs. increased the frequency of SCE. Doses required to double the control SCE frequency were in the sublethal range of the survival curve for DBD, DBM, LY, DAG, and DiacDAG. Doses higher than the sublethal ones were required of ZI, DisuDAG, BAD, and EAD to achieve a 2-fold increase in SCE frequency. On the basis of these doses, the relative potencies for SCE induction of the compds. were as follows: EAD < BAD < DisuDAG < Zi < DiacDAG < DAG < DBD < DBM < LY. Within this range, there was a 2 million-fold difference in the SCE production of these chemical related compds.

IT 23261-20-3 57230-48-5 66913-57-3
RL: BIOL (Biological study)
(mutagenicity of and sister chromatid exchanges induction by)

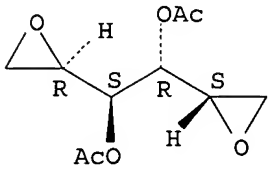
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



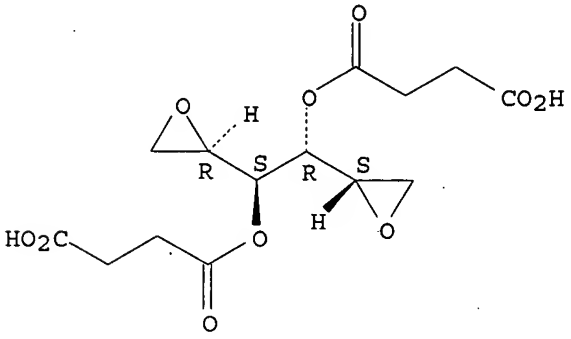
RN 57230-48-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, diacetate (9CI) (CA INDEX NAME)

Relative stereochemistry.

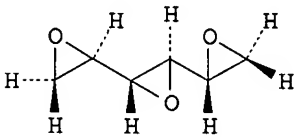


RN 66913-57-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate) (9CI) (CA INDEX NAME)

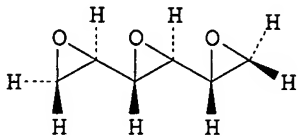
Relative stereochemistry.



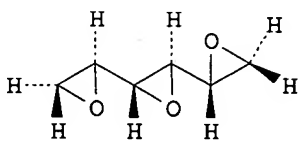
L8 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:156908 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 100:156908
TITLE: Synthesis of 1,2:3,4:5,6-trianhydrohexitols with gluco, manno and ido configuration
AUTHOR(S): Koell, Peter; Oelting, Michael; Kopf, Juergen
CORPORATE SOURCE: Fachber. Chem., Univ. Oldenburg, Oldenburg, D-2900, Fed. Rep. Ger.
SOURCE: Angewandte Chemie (1984), 96(3), 222-3
CODEN: ANCEAD; ISSN: 0044-8249
DOCUMENT TYPE: Journal
LANGUAGE: German
GI



II



III



IV

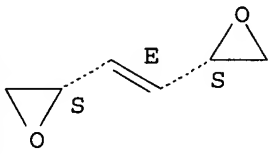
AB Epoxidn. of 1,2:5,6-dianhydro-3,4-dideoxy-D-threo-hex-3-enitol (I) by H2O2 in MeOH containing MeCN of Cl3CCN gave 1:3 mixture of two

enantiomeric pure diastereomers D-manno-II and D-ido-III. Analogously, erythro-I gave racemate of D-,L-gluco IV.

IT 74862-85-4 74892-54-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(epoxidn. of, by hydrogen peroxide, stereochem. of)

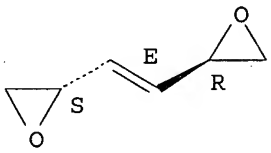
RN 74862-85-4 HCAPLUS
CN D-threo-Hex-3-enitol, 1,2:5,6-dianhydro-3,4-dideoxy-, (E)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.



RN 74892-54-9 HCAPLUS
CN erythro-Hex-3-enitol, 1,2:5,6-dianhydro-3,4-dideoxy-, (E)- (9CI) (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.

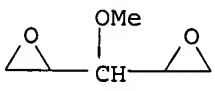


L8 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1983:179788 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 98:179788
TITLE: 1,5-Dihalogeno- and 1,2:4,5-dianhydroxylitol derivatives. Part I. Synthesis and structure of 1,5-dideoxy-1,5-dihalogeno- and 1,2:4,5-dianhydroxylitol derivatives
AUTHOR(S): Vidra, Ildiko; Institoris, Laszlo; Simon, Kalman; Czugler, Matyas; Csoeregh, Ingeborg
CORPORATE SOURCE: Chinoin Res. Cent., Budapest, H-1325, Hung.
SOURCE: Carbohydrate Research (1983), 111(2), 215-23
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English

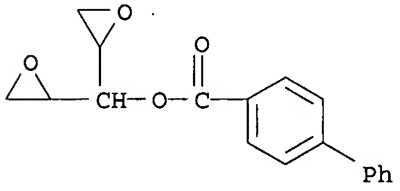
AB Ten terminally disubstituted dihalo or diepoxy derivative of xylitol were prepared

IT 78465-34-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and bromination of)

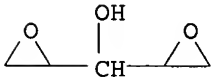
RN 78465-34-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)



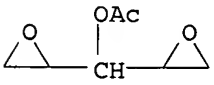
IT 72858-47-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
RN 72858-47-0 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, [1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)



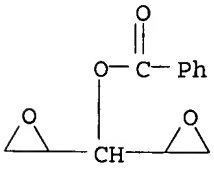
IT 63976-13-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reactions of)
RN 63976-13-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro- (9CI) (CA INDEX NAME)



IT 72858-49-2P 72858-51-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 72858-49-2 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, acetate (9CI) (CA INDEX NAME)



RN 72858-51-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-, benzoate (9CI) (CA INDEX NAME)



L8 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:563415 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 97:163415

TITLE: Polyols with at least one oxacyclopentane ring
INVENTOR(S): Feldmann, John; Koebernick, Hubert; Woelk, Hans Ulrich
PATENT ASSIGNEE(S): Maizena G.m.b.H., Fed. Rep. Ger.
SOURCE: Ger. Offen., 13 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3041673	A1	19820603	DE 1980-3041673	19801105
DE 3041673	C2	19831208		
DK 8104525	A	19820506	DK 1981-4525	19811013
ZA 8107113	A	19820929	ZA 1981-7113	19811014
EP 52295	A2	19820526	EP 1981-109422	19811030
EP 52295	A3	19820825		
EP 52295	B1	19850508		
R: BE, CH, DE, FR, GB, IT, NL, SE				
FI 8103442	A	19820506	FI 1981-3442	19811102
FI 79306	B	19890831		
FI 79306	C	19891211		
ES 506841	A1	19830116	ES 1981-506841	19811104
BR 8107183	A	19820720	BR 1981-7183	19811105
CA 1195687	A1	19851022	CA 1982-401406	19820421

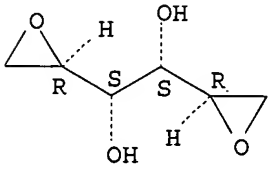
PRIORITY APPLN. INFO.: DE 1980-3041673 A 19801105
OTHER SOURCE(S): MARPAT 97:163415

AB Anhydrofuranases were prepared by dehydration sugar alcs. in the presence of the catalyst at reduced pressure at <160°. Thus, 25 kg 70% aqueous sorbitol was dehydrated in the process of divinylbenzene-crosslinked polystyrenesulfonic acid at 0.03 bar and 140° to give 13.9 kg a product containing 91% dianhydrosorbitol.

IT 19895-66-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L8 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:545226 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 97:145226
TITLE: Hexitol derivatives and their pharmaceutical compositions
INVENTOR(S): Elekes, Ilona; Institoris, Laszlo; Medzihradszky, Kalman; Otvos, Laszlo; Medzihradszky, Hedvig; Di Gleria, Katalin; Sugar, Janos; Somfai-Relle, Zsuzsanna; Eckhardt, Sandor; et al.
PATENT ASSIGNEE(S): Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Hung.
SOURCE: Eur. Pat. Appl., 28 pp.

CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 51467	A1	19820512	EP 1981-305161	19811030
EP 51467	B1	19860813		
R: AT, BE, CH, DE, FR, GB, IT, NL, SE				
HU 24650	A2	19830328	HU 1980-2649	19801104
HU 182227	B	19831228		
US 4419522	A	19831206	US 1981-315182	19811026
AT 21394	T	19860815	AT 1981-305161	19811030
FI 8103430	A	19820505	FI 1981-3430	19811102
FI 66607	B	19840731		
FI 66607	C	19841112		
JP 57106642	A	19820702	JP 1981-174703	19811102
JP 06099364	B	19941207		
DK 8104858	A	19820505	DK 1981-4858	19811103
DD 202431	A5	19830914	DD 1981-234590	19811103
CA 1192210	A1	19850820	CA 1981-389270	19811103
SU 1205769	A3	19860115	SU 1981-3350453	19811103
CS 251066	B2	19870611	CS 1981-8075	19811103
SU 1194863	A1	19851130	SU 1982-3437177	19820518
SU 1225487	A3	19860415	SU 1982-3437277	19820518
DD 207374	A5	19840229	DD 1983-247073	19831103
CS 251099	B2	19870611	CS 1985-5962	19850816

PRIORITY APPLN. INFO.: HU 1980-2649 A 19801104
EP 1981-305161 A 19811030
CS 1981-8075 A3 19811103

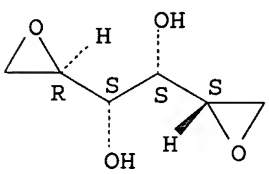
OTHER SOURCE(S): MARPAT 97:145226

AB Hexitols (dulcitol, mannitol, or iditol), R2CH2CHR3CH(OR)CH(OR1)CHR3CH2R2 [R = free CO2H-containing un(saturated) alkylcarbonyl or aralkylcarbonyl, free CO2H-containing arylcarbonyl; R1 = H, R, (un)saturated alkylcarbonyl or aralkylcarbonyl; R2 = halo; R3 = OH; or R2R3 = O] were prepared Thus, hydrogenolysis of 1,2:5,6-dianhydro-3,4-bis(β-benzyloxycarbonylpropionyl)dulcitol over Pd/C gave 96% 1,2;5,6-dianhydro-3,4-bis(β-carboxypropionyl)dulcitol, which showed antitumor activity, e.g., against P388 leukemia.

IT 42355-01-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(acylation of, with succinic anhydride)

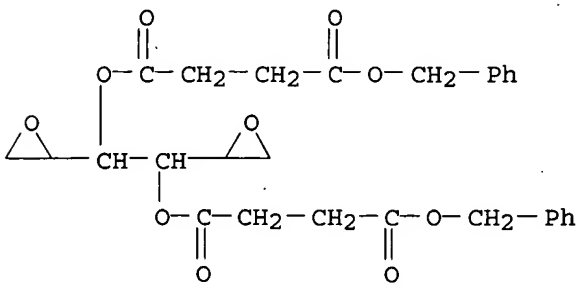
RN 42355-01-1 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

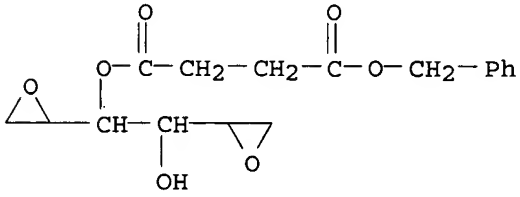


IT 83085-22-7 83085-24-9 83085-26-1
83085-28-3 83085-30-7 83085-32-9
83148-82-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenolysis of)

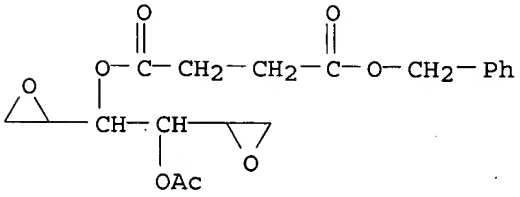
RN 83085-22-7 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, bis(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)



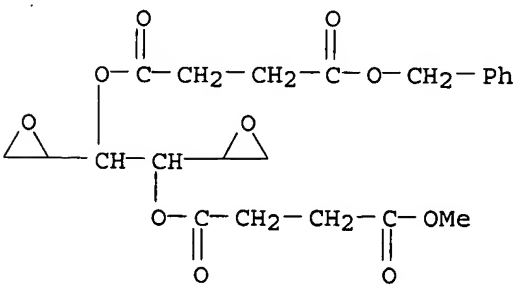
RN 83085-24-9 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 3-(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)



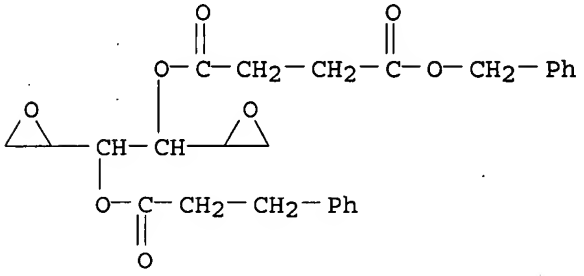
RN 83085-26-1 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 4-acetate 3-(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)



RN 83085-28-3 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 4-(methyl butanedioate) 3-(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)

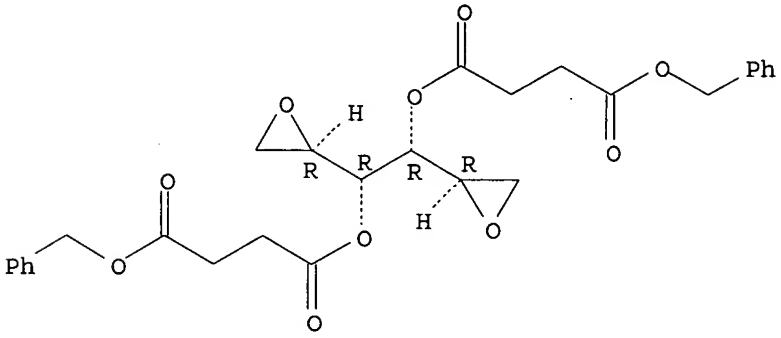


RN 83085-30-7 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 4-benzenepropanoate 3-(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)



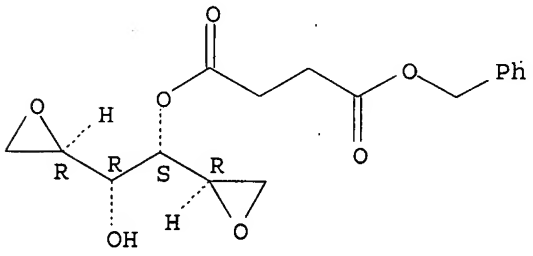
RN 83085-32-9 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, bis(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.



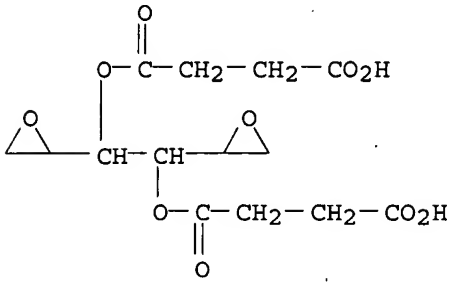
RN 83148-82-7 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, mono(phenylmethyl butanedioate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.

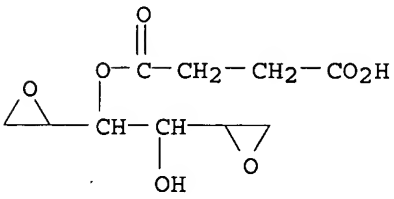


IT 83148-78-1P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation and antitumor activity of)

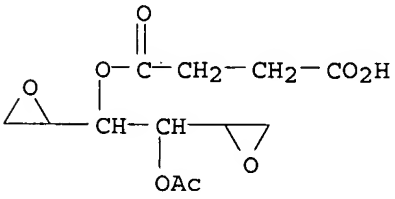
RN 83148-78-1 HCAPLUS
CN D-Galactitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate) (9CI) (CA INDEX NAME)



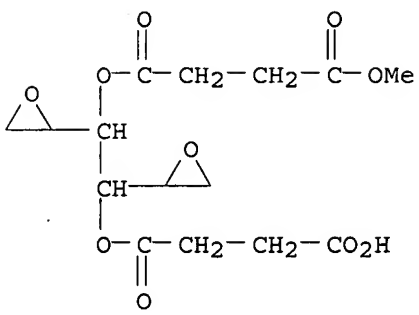
IT 83085-23-8P 83085-25-0P 83085-27-2P
83085-29-4P 83148-79-2P 83148-80-5P
83148-81-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 83085-23-8 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 3-(hydrogen butanedioate) (9CI) (CA INDEX NAME)



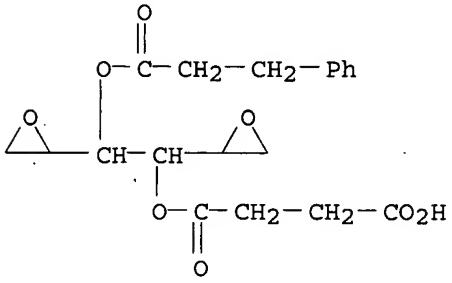
RN 83085-25-0 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 4-acetate 3-(hydrogen butanedioate) (9CI) (CA INDEX NAME)



RN 83085-27-2 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 3-(hydrogen butanedioate) 4-(methyl butanedioate) (9CI) (CA INDEX NAME)



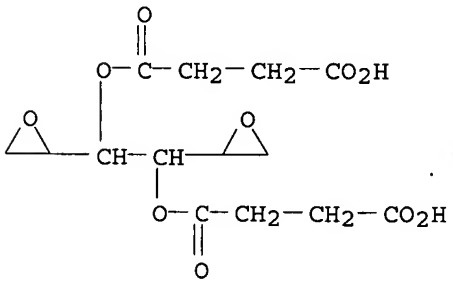
RN 83085-29-4 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, 4-benzenepropanoate 3-(hydrogen butanedioate) (9CI) (CA INDEX NAME)



RN 83148-79-2 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate), compd. with 2-amino-2-(hydroxymethyl)-1,3-propanediol (9CI) (CA INDEX NAME)

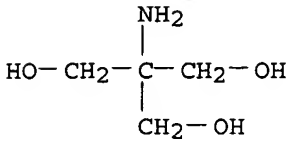
CM 1

CRN 83148-78-1
CMF C14 H18 O10



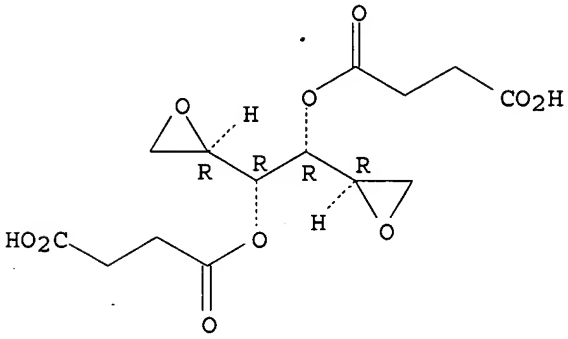
CM 2

CRN 77-86-1
CMF C4 H11 N O3



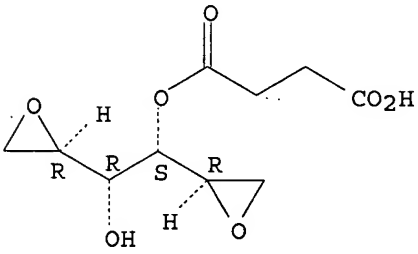
RN 83148-80-5 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, bis(hydrogen butanedioate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 83148-81-6 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, mono(hydrogen butanedioate) (9CI) (CA INDEX NAME)

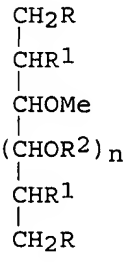
Absolute stereochemistry.



L8 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1981:481416 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 95:81416
TITLE: Sugar alcohol derivatives and pharmaceutical preparations containing them
INVENTOR(S): Vidra, Ildiko; Institoris, Laszlo
PATENT ASSIGNEE(S): Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Hung.
SOURCE: Ger. Offen., 29 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3030963	A1	19810319	DE 1980-3030963	19800816
HU 21359	A2	19811128	HU 1979-VI1266	19790817
HU 179076	B	19820828		
FI 8002551	A	19810218	FI 1980-2551	19800813
BE 884780	A1	19801201	BE 1980-201751	19800814
FR 2463762	A1	19810227	FR 1980-17974	19800814
FR 2463762	B1	19841026		
DD 153872	A5	19820210	DD 1980-223328	19800814
US 4337266	A	19820629	US 1980-177948	19800814
AT 8004161	A	19820815	AT 1980-4161	19800814
AT 370416	B	19830325		
DK 8003549	A	19810218	DK 1980-3549	19800815
NO 8002451	A	19810218	NO 1980-2451	19800815
NO 152412	B	19850617		
NO 152412	C	19850925		
SE 8005780	A	19810218	SE 1980-5780	19800815
NL 8004631	A	19810219	NL 1980-4631	19800815
GB 2058760	A	19810415	GB 1980-26633	19800815
GB 2058760	B	19830706		
CS 214839	B2	19820625	CS 1980-5630	19800815
CH 648837	A5	19850415	CH 1980-6179	19800815
CA 1189525	A1	19850625	CA 1980-358377	19800815
PL 130388	B1	19840831	PL 1980-226283	19800816
JP 56030936	A	19810328	JP 1980-113329	19800818
SU 979315	A1	19821207	SU 1980-2992953	19801009

PRIORITY APPLN. INFO.: HU 1979-VI1266 A 19790817
OTHER SOURCE(S): MARPAT 95:81416
GI



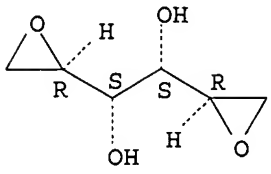
I

AB The sugar derivs. I (R = H, halo; R1 = OH; RR1 = O; R2 = H, Me, acyl; n = 0, 1) were prepared Thus, 1,2;5,6-dianhydrodulcitol was treated with CH2N2 to give 3-O-Me and 3,4-di-O-Me derivs. which were treated with HBr to give 1,6-dibromo-1,6-dideoxy-3-O-methyldulcitol at 3,4-O-dimethyl derivative I have antitumor activity. Thus, 1,2;5,6-dianhydro-3,4-di-O-methyldulcitol at 1 + 100 mg/kg i.p. gave 80% inhibition of Walker carcinosarcoma.

IT 19895-66-0 23261-20-3 42355-01-1
63976-13-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(methylation of)

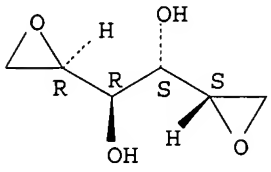
RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



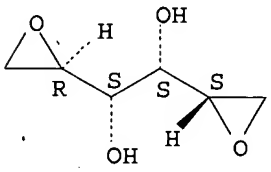
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.

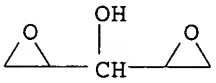


RN 42355-01-1 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

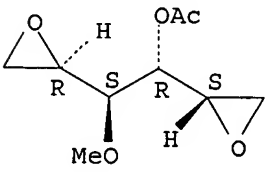


RN 63976-13-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro- (9CI) (CA INDEX NAME)



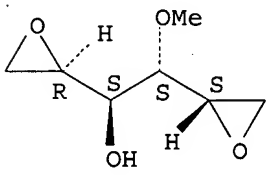
IT 78465-30-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and halogenation of)
RN 78465-30-2 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3-O-methyl-, acetate (9CI) (CA INDEX NAME)

Relative stereochemistry.



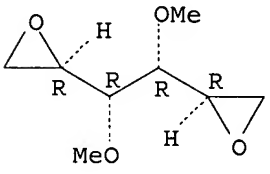
IT 78513-44-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and methylation of)
RN 78513-44-7 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.



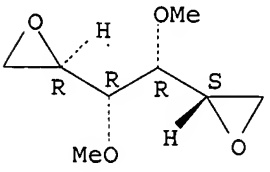
IT 71223-61-5P 71223-65-9P 78465-31-3P
78465-32-4P 78465-33-5P 78481-43-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 71223-61-5 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



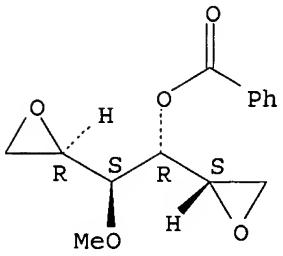
RN 71223-65-9 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



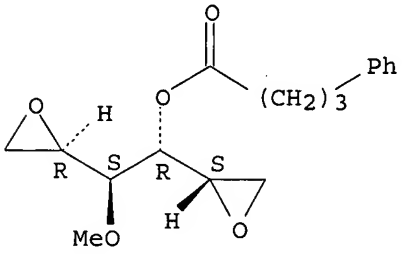
RN 78465-31-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3-O-methyl-, benzoate (9CI) (CA INDEX NAME)

Relative stereochemistry.



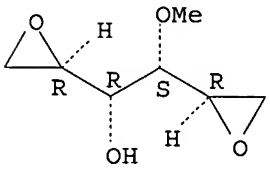
RN 78465-32-4 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3-O-methyl-, benzenebutanoate (9CI) (CA INDEX NAME)

Relative stereochemistry.



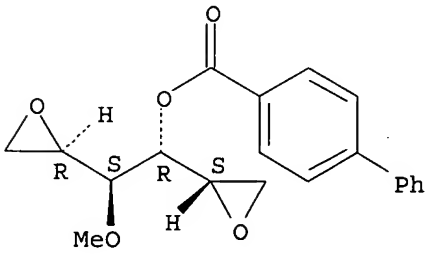
RN 78465-33-5 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



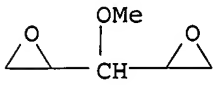
RN 78481-43-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3-O-methyl-, [1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)

Relative stereochemistry.



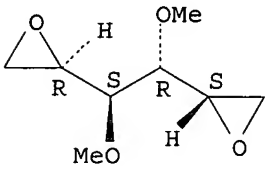
IT 78465-34-6P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation, bromination, and antitumor activity of)
RN 78465-34-6 HCAPLUS
CN Xylitol, 1,2:4,5-dianhydro-3-O-methyl- (9CI) (CA INDEX NAME)



IT 71242-82-5P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation, halogenation, and antitumor activity of)
RN 71242-82-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

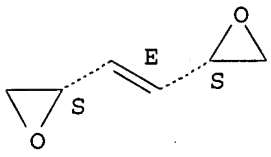
Relative stereochemistry.



L8 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:550528 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 93:150528
TITLE: Synthesis of new sugar derivatives having potential antitumor activity. Part XXII. Synthesis of 1,2:5,6-dianhydro-3,4-dideoxy-erythro- and D-threo-hexitol and their E-3-ene derivatives
AUTHOR(S): Kuszmann, Janos; Sohar, Pal
CORPORATE SOURCE: Inst. Drug Res., Budapest, H-1325, Hung.
SOURCE: Carbohydrate Research (1980), 83(1), 63-72
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Starting from 1,2:5,6-di-O-isopropylidene-D-mannitol and -D-glucitol, resp., D-threo- and erythro-hex-E-3-enitol were synthesized; these were hydrogenated to the 3,4-dideoxy compds., which were converted into the corresponding 1,2:5,6-dianhydrides, possessing significantly different cytostatic activity. The D-threo- and erythro-E-3-ene diepoxides were also synthesized; they are unstable at room temperature and show no biol. activity.
IT 74862-85-4P 74892-51-6P 74892-53-8P
74892-54-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and cytostatic activity of)
RN 74862-85-4 HCAPLUS
CN D-threo-Hex-3-enitol, 1,2:5,6-dianhydro-3,4-dideoxy-, (E)- (9CI) (CA INDEX NAME)

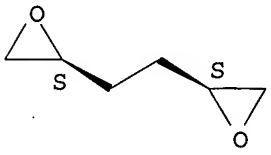
Absolute stereochemistry.

Double bond geometry as shown.



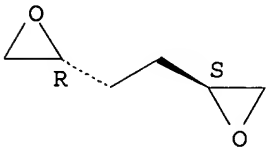
RN 74892-51-6 HCAPLUS
CN D-threo-Hexitol, 1,2:5,6-dianhydro-3,4-dideoxy- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



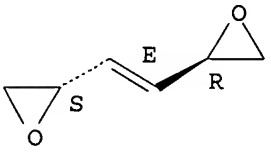
RN 74892-53-8 HCAPLUS
CN erythro-Hexitol, 1,2:5,6-dianhydro-3,4-dideoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 74892-54-9 HCAPLUS
CN erythro-Hex-3-enitol, 1,2:5,6-dianhydro-3,4-dideoxy-, (E)- (9CI) (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.



L8 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1979:508167 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 91:108167
TITLE: Synthesis of new sugar derivatives having potential antitumor activity. XXI. 3,4-Di-O-alkyl-1,6-dibromo-1,6-dideoxyhexitols
AUTHOR(S): Kuszmann, Janos
CORPORATE SOURCE: Inst. Drug Res., Budapest, H-1325, Hung.
SOURCE: Carbohydrate Research (1979), 73, 93-101
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal

LANGUAGE: English

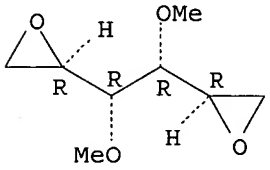
AB For studying the structure-activity relationship of cytostatically active hexitol derivs., 1,6-dibromo-1,6-dideoxy-3,4-di-O-methyl-D-mannitol, -L-iditol (I), -D-glucitol, and -galactitol (II), as well as -3,4-di-O-ethyl-, and -di-O-allyl-D-mannitol were synthesized by treating the corresponding 1,2:5,6-dianhydrohexitol derivs. with aqueous LiBr and neutralizing the liberated base with AcOH. The reaction of diepoxides 1,2:5,6-dianhydro-3,4-di-O-methyl-D-mannitol, -L-iditol, and -D-glucitol with HBr yielded 2,5-anhydro-monobromo derivs. The biol. activity of I and II is comparable to that of 1,6-dibromo-1,6-dideoxy-D-galactitol, a well known cytostatic.

IT 71223-61-5 71223-64-8 71223-65-9
71223-72-8 71223-75-1 71242-82-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(bromination of)

RN 71223-61-5 HCAPLUS

CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

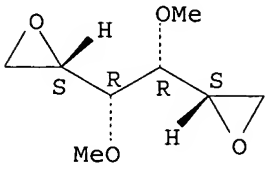
Absolute stereochemistry.



RN 71223-64-8 HCAPLUS

CN L-Iditol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

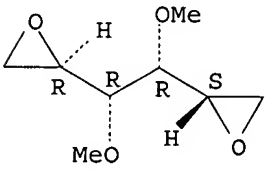
Absolute stereochemistry.



RN 71223-65-9 HCAPLUS

CN D-Glucitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

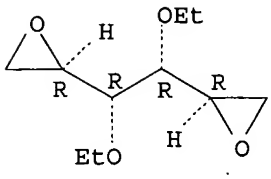
Absolute stereochemistry.



RN 71223-72-8 HCAPLUS

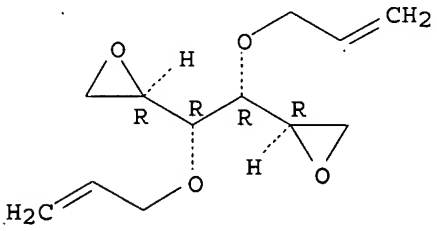
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-ethyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



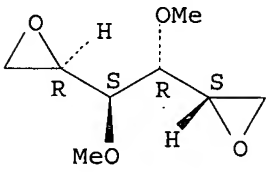
RN 71223-75-1 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-2-propenyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 71242-82-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

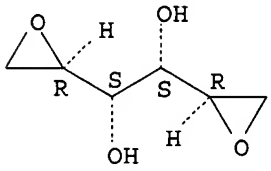
Relative stereochemistry.



L8 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1979:508165 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 91:108165
TITLE: Synthesis of new sugar derivatives having potential anti-tumor activity, part XX. 3,4-Di-O-alkylhexitol derivatives containing biological alkylating groups at C-1 and C-6
AUTHOR(S): Kuszmann, Janos
CORPORATE SOURCE: Inst. Drug. Res., Budapest, H-1325/4, Hung.
SOURCE: Carbohydrate Research (1979), 71, 123-34
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
AB For studying the structure-activity relationship of cytostatically active hexitol derivs., 1,2:5,6-dianhydro-3,4-di-O-methyl- (I), -ethyl-, -allyl-, and -pentyl-D-mannitol, as well as 1,2:5,6-dianhydro-3,4-di-O-methyl-L-iditol, -galactitol, and -D-glucitol were prepared; in the preparation of I, 2,5-di- O acetyl-1,6-di-O-mesyl-3,4-di-O-methyl-D-mannitol was used as an intermediate that could be deacetylated to give 1,6-di-O-mesyl-3,4-di-O-methyl-D-mannitol, a compound that proved to be about 10 times as active as 1,6-di-O-mesyl-D-mannitol (Mannitol-Myleran), a known cytostatic compound
IT 19895-66-0

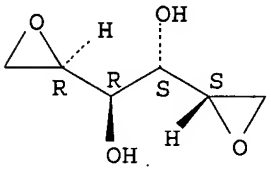
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of, by alkyl iodides and silver oxide)
RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



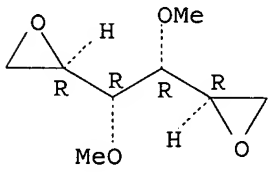
IT 23261-20-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(methylation of)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



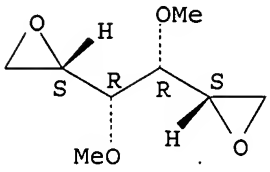
IT 71223-61-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and sulfurization of)
RN 71223-61-5 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



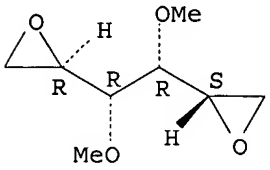
IT 71223-64-8P 71223-65-9P 71223-72-8P
71223-75-1P 71240-75-0P 71242-82-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 71223-64-8 HCAPLUS
CN L-Iditol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



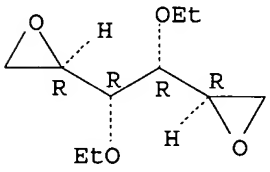
RN 71223-65-9 HCAPLUS
CN D-Glucitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



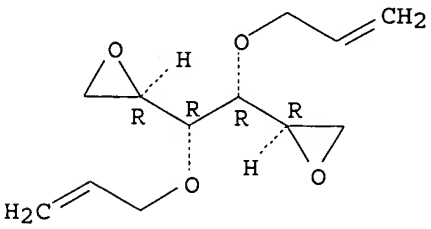
RN 71223-72-8 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-ethyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



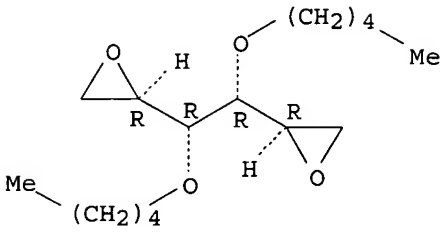
RN 71223-75-1 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-2-propenyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



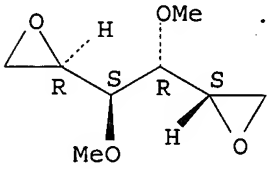
RN 71240-75-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-di-O-pentyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



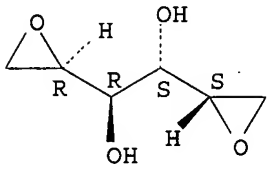
RN 71242-82-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.

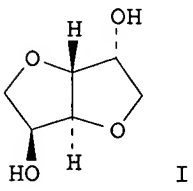


L8 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1976:537358 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 85:137358
TITLE: Histological and ultrastructural characterization and experimental chemotherapy of malignant melanoma
AUTHOR(S): Sugar, J.; Csuka, O.; Gabor, S.; Toth, J.; Somfai-Relle, S.; Palyi, I.; Szentirmay, Z.
CORPORATE SOURCE: Res. Inst. Oncopathol., Budapest, Hung.
SOURCE: Advances in Tumour Prevention, Detection and Characterization (1976), 3(Biol. Charact. Hum. Tumours, Proc. Int. Symp., 6th, 1975), 274-82
CODEN: APDCDT
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Dimethyltriasenoimidazole carboxamide [4342-03-4] had no significant damaging effect on B-16 melanoma cells in vitro; it only influenced their shape, which became similar to that of a fibroblast. Of 3 halogenated sugar alcs. and 3 alkaloids tested against the Harding-Passey melanoma in mice a dianhydrodulcitol derivative was the most effective, producing 90% tumor inhibition at 1/4 the LD50 without any toxicity. The main fine structural changes produced by this drug were the appearance of spotted nucleoli and an excessive increase of melanosomes and premelanosomes. The vinca alkaloids, which were all less effective than the sugar alcs., induced cytoplasmic paracrystals and filament formation. The histol. and ultrastructural characterization of malignant melanomas was also presented.
IT 23261-20-3
RL: BIOL (Biological study)
(melanoma treatment with)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



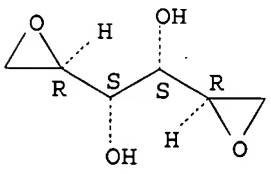
L8 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1976:440674 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 85:40674
TITLE: Cell survival and phase sensitivity studies on cell cultures treated with cytotoxic sugar alcohol derivatives
AUTHOR(S): Palyi, Istvan
CORPORATE SOURCE: Onkopathol. Kut. Intez., Budapest, Hung.
SOURCE: Magyar Tudomanyos Akademia Biologiai Tudomanyok Osztalyanak Kozlemenyei (1976), 19(1), 109-20
CODEN: MTKZAI; ISSN: 0025-0333
DOCUMENT TYPE: Journal
LANGUAGE: Hungarian
GI



I

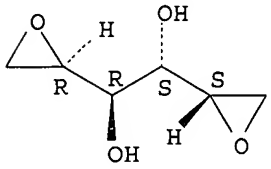
AB The cytotoxicity of 4 sugar alc. derivs. to HeLa cells, shown by cell-survival studies, was in the order: dianhydrodulcitol (I) [23261-20-3] > dianhydromannitol [19895-66-0] » dibromodulcitol [10318-26-0] > dibromomannitol [488-41-5]. In the culture liquid, I was decomposed faster than was dibromodulcitol. The M, G1, and S phases, and the S-to-G2 transition, were the most sensitive to I. I inhibited DNA synthesis, especially in the late stages.
IT 19895-66-0 23261-20-3
RL: PRP (Properties)
(cytotoxicity of, to HeLa cells)
RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



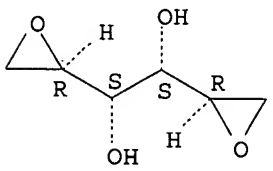
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



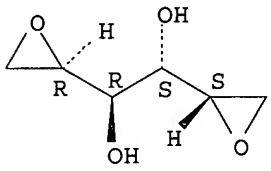
L8 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:109327 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 76:109327
TITLE: Stereochemistry of the reactions of biopolymers. III. Alkylation of DNA with bifunctional alkylating agents. I. Reaction of DNA with dibromodulcitol and analogous sugar
AUTHOR(S): Otvos, Laszlo; Elekes, Ilona; Kraicsovits, Ferenc; Institoris, Laszlo
CORPORATE SOURCE: Kozp. Kem. Kut. Intez., Magy. Tud. Akad., Budapest, Hung.
SOURCE: Magyar Kemiai Folyoirat (1971), 77(12), 646-9
CODEN: MGKFA3; ISSN: 0025-0155
DOCUMENT TYPE: Journal
LANGUAGE: Hungarian
AB Cross-linking reactions occurring during double alkylation of DNA were examined on the basis of the renaturability measured after alkaline denaturation of chicken blood DNA. The following hexitol derivs. were applied: 1,6-dichloro-1,6-dideoxydulcitol (DClD), 1,6-dibromo-1,6-dideoxydulcitol (DBD), 1,6-dichloro-1,6-dideoxymannitol (DClM), 1,6-dibromo-1,6-dideoxymannitol (DBM), 1,2:5,6-dianhydrodulcitol (DAD), 1,2:5,6-dianhydromannitol (DAM), 1,2:5,6-dianhydro -3,4-isopropylidenemannitol (DAIpM), and 1,6-dibromosorbitol (DBS). The halogen derivs. showed the following trend of cross-linking ability: DBD > DBM > DBS > DClD > DClM, while the order of the epoxides was: DAD > DAM » DAIpM. The pH dependence of the hydrolysis rate and alkylating ability of the halogen derivs. and a comparison of the results obtained with the anhydro compds. showed that the DNA cross-linking alkylation proceeded thru epoxides as intermediates also in the case of halogen compds. The effect of steric factors on the reactivity of each compound is discussed.
IT 19895-66-0 23261-20-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with DNA)
RN 19895-66-0 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



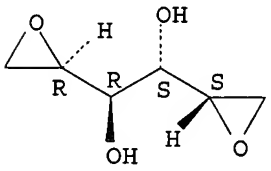
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.



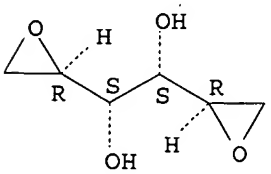
L8 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:86052 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 76:86052
TITLE: Solvolytic substitution reactions of sugar alcohol derivatives. II. Hydrolysis and reactions with nucleophiles of 1,2;5,6-dianhydrodulcitol and 1,2;5,6-dianhydromannitol
AUTHOR(S): Otvos, Laszlo; Kraicsovits, Ferenc; Elekes, Ilona; Institoris, Laszlo
CORPORATE SOURCE: Kozp. Kem. Kut. Intez., Magy. Tud. Akad., Budapest, Hung.
SOURCE: Magyar Kemiai Folyoirat (1971), 77(12), 644-5
CODEN: MGKFA3; ISSN: 0025-0155
DOCUMENT TYPE: Journal
LANGUAGE: Hungarian
AB The nucleophilic reactions of the title compds. in aqueous solution at 59.5° had SN2 mechanisms. The susceptibility factors of the sugar alcohols were found identical with those of simple epoxides such as epichlorohydrin and 1,2-anhydroglycerol. Equilibrium consts. and reaction mechanisms of the SN2 hydrolysis were determined
IT 23261-20-3 35396-03-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with nucleophiles)
RN 23261-20-3 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro- (8CI, 9CI) (CA INDEX NAME)

Relative stereochemistry.

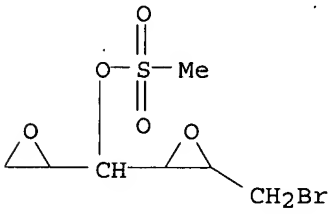


RN 35396-03-3 HCAPLUS
CN Mannitol, 1,2:5,6-dianhydro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L8 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1971:420848 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 75:20848
TITLE: Synthesis of new sugar derivatives having potential antitumor activity. XV. 2.3:4,5-Dianhydro-1,6-dibromo-1,6-dideoxy-D-iditol and -galactitol
AUTHOR(S): Kuszmann, Janos; Varga, Laszlo
CORPORATE SOURCE: Res. Inst. Pharm. Chem., Budapest, Hung.
SOURCE: Carbohydrate Research (1971), 16(2), 261-71
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 75:20848
AB 2,3:4,5-Dianhydro-1,6-dibromo-1,6-dideoxy-D-iditol and -galactitol and derivs. were prepared, starting from 1,6-dibromo-1,6-dideoxy-3,4-O-isopropylidene-D-mannitol. The galactitol derivative was formed via 3,5-di-O-acetyl-1,6-dibromo-1,6-dideoxy-D-mannitol, from the resp. 2,5-diacetate by acyl migration, whose mechanism is discussed.
IT 32739-59-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 32739-59-6 HCAPLUS
CN Glucitol, 2,3:5,6-dianhydro-1-bromo-1-deoxy-, methanesulfonate, D- (8CI) (CA INDEX NAME)



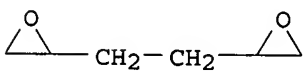
L8 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1952:54514 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 46:54514
ORIGINAL REFERENCE NO.: 46:9059c-i,9060a
TITLE: Anhydrides of polyhydric alcohols. XVI. The action of phenols on some ethylene oxide derivatives
AUTHOR(S): McSweeney, G. P.; Wiggins, L. F.; Wood, D. J. C.
CORPORATE SOURCE: Univ. Edgbaston, Birmingham, UK
SOURCE: Journal of the Chemical Society (1952) 37-43
CODEN: JCSOA9; ISSN: 0368-1769
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.
AB cf. C.A. 46, 1976g. 1,2:5,6-Diepoxyhexane (I) (1.2 g.), added to 5 g. PhOH and 0.2 g. Na in 20 cc. C6H6, heated 7 hrs. on the water bath, and the product washed with dilute NaOH and EtOH, gives 1.3 g. of a mixture which, crystallized from a large volume of EtOH, gives 0.24 g. 1,6-diphenoxy-2,5-hexanediol (II), m. 163-4.5°, and 0.16 g. of an isomer (III), m. 135-6.5°. The diacetate of II m. 102-3°; that of III m. 70-1.5°. II yields a bis(p-toluenesulfonate), m. 177-8° (decomposition); with NaI in Me2CO it yields 1.78 equivs. of p-MeC6H4SO3Na (IV); the bis(p-toluenesulfonate) of III m. 124-5° and yields 2

equivs. of IV. I (0.5 g.) and 2.5 g. m-MeC6H4OH yield 0.14 g. 1,6-di-m-toloxy-2,5-hexanediol (V), m. 93.5-4.5°, and 0.02 of an isomer, m. 119-20°. I and p-MeC6H4OH give 0.025 g. of the p-toloxy isomer of V, m. 173-4.5° and its isomer, m. 143.5-5°; the mixed isomers yield 2 diacetates, m. 49.5-51° and 123-5°. I and o-MeC6H4OH yield only 1 o-toloxy isomer of V, m. 95-7°. 3,4-Isopropylidene-1,2:5,6-dianhydromannitol (VA) (1 g.), added to 5 g. PhOH and 0.25 g. Na in 20 cc. C6H6 and heated 5 hrs., give 1.9 g. 1,6-diphenyl-3,4-isopropylidenemannitol (VI), m. 115°; 0.1 g. VI, 25 cc. 0.1 N H2SO4, and 5 cc. EtOH, heated 3 hrs. on the water bath, give 0.08 g. 1,6-diphenylmannitol (VII), m. 200-4° (2,3,4,5-tetra-Bz derivative, m. 122-3°). 2,3:4,5-Diisopropylidene-1,6-dichloro-1,6-didesoxymannitol (0.5 g.) and 0.6 g. PhONa in 15 cc. Me2CO, heated 22 hrs. at 120°, give 0.4 g. VI. VI (0.5 g.) and 1 g. p-MeC6H4SO2Cl in 10 cc. C5H5N, heated 8 hrs. at 120-30° (no reaction overnight at 30°), give 0.7 g. crude 2,5-bis(p-tolylsulfonyl) derivative (VIII) of VI, m. 107-8°; it does not react with NaI in Me2CO. VIII (0.19 g.), 20 cc. EtOH, and 20 cc. 0.5 N H2SO4, refluxed 8.5 hrs. (no reaction with 0.1 N H2SO4), give 0.1 g. of the 2,5-bis(p-tolylsulfonyl) derivative of VII, m. 185-6°; it does not react with NaI in Me2CO (8 hrs. at 100°); heating a further 8 hrs. at 150° gives a small quantity of IV. MeCH2.CH2.O (3 g.) and PhONa in C6H6, refluxed 5 hrs., give 2.8 g. MeCH(OH)CH2OPh (IX), b15 134-6°; p-toluenesulfonate, m. 93-4°; with NaI in Me2CO this yields 92% IV. IX was also prepared from PhOCH2CHO and MeMgI. VA (1.4 g.) and p-ClC6H4ONa in 70 cc. C6H6, refluxed 8 hrs., give 0.3 g. 1,6-bis(p-chlorophenyl) derivative, m. 111-14°, which, refluxed 10 hrs. with N H2SO4, gave 1,6-di-(p-chlorophenyl)mannitol, m. 177-8°. VA (1 g.) and m-MeC6H4ONa in C6H6 give 0.9 g. of the 3,4-isopropylidene derivative, with 1 mol. H2O, m. 68-70°, [α]D17 22.4 (C5H5N, c 3.22), of 1,6-di-m-tolylmannitol, m. 139.5-40.5°, [α]D15 24.6° (C5H5N, c 1.38); tetrabenzoate, m. 101-2°, [α]D 30.2° (C5H5N, c 2.98). 1,3:2,4-Diethylidene-5,6-anhydrosorbitol (X) (7.2 g.) and o-MeC6H4ONa in C6H6, refluxed 9 hrs., give 7 g. 1,3:2,4-diethylidene-6-(o-tolyl)sorbitol (XI), m. 134.5-5.5°, [α]D18 4.07° (CHCl3, c 4.94); 5-(p-tolylsulfonyl) derivative, m. 143-4°, [α]D20.5 -14.8° (C5H5N, c 2.55); it does not react with NaI in Me2CO (7 hrs. at 105-10°); hydrolysis of XI gives 6-o-tolylsorbitol, [α]D 12.4° (EtOH, c 7.7); pentaacetate, m. 89.5-90.5°. 6-m-Tolyl isomer of XI, m. 88°, [α]D19 -8.1° (C5H5N, c 3.46); 6-m-tolylsorbitol, [α]D18.5 13.9° (EtOH, c 6.06); pentaacetate, m. 110-11°, [α]D18 -28.5° (C5H5N, c 3.72). X and PhONa give the 6-Ph analog of XI, m. 98-9°, [α]D17.5 11.3° (EtOH, c 2.82).

IT 1888-89-7, Hexane, 1,2,5,6-diepoxy-
(reaction with phenols)

RN 1888-89-7 HCAPLUS

CN Hexitol, 1,2:5,6-dianhydro-3,4-dideoxy- (9CI) (CA INDEX NAME)



L18 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:93062 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 142:355662
TITLE: Synthesis of Hyperbranched Polytetritol by Ring-Opening Multibranching Polymerizations of 2,3-Anhydroerythritol and 2,3-Anhydro-DL-threitol
AUTHOR(S): Imai, Tomoko; Nawa, Yumiko; Kitajyo, Yoshikazu; Satoh, Toshifumi; Kaga, Harumi; Kaneko, Noriaki; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Molecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Macromolecules (2005), 38(5), 1648-1654
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

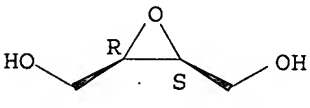
AB 2,3-Anhydroerythritol (1a) and 2,3-anhydro-DL-threitol (1b) were polymerized using boron trifluoride di-Et etherate ($BF_3 \cdot OEt_2$) as a cationic initiator. The polymns. of 1a and 1b proceeded through a ring-opening reaction with a proton-transfer reaction to produce hyperbranched carbohydrate polymers (2a and 2b) consisting of DL-threitol and erythritol units, resp. The degrees of branching (DBs) estimated by the 13C NMR spectra of 2a and 2b were 0.47 and 0.45, resp. The weight-average mol. weight (Mw,SLS) values (2.67 + 105-3.20 + 106) estimated using static light scattering (SLS) of the resulting hyperbranched carbohydrate polymers were significantly higher than the weight-average mol. weight (Mw,SEC) values (1.04 + 103-2.77 + 103) estimated using size exclusion chromatog. (SEC). The viscosities of 2a and 2b in aqueous sodium nitrate ($NaNO_3$) solution were very low, and the intrinsic viscosities ([η]) of 2a and 2b were in the range from 0.0190 to 0.0250 dL g-1. The three-dimensional properties characterized by the SLS and viscosity measurements indicated that 2a and 2b should be spherical mols.

IT 756529-94-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(hyperbranched; synthesis of hyperbranched polythreitol by ring-opening multibranching polymns. of anhydroerythritol and anhydro-DL-threitol)
RN 756529-94-9 HCAPLUS
CN 2,3-Oxiranedimethanol, (2R,3S)-rel-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 57302-79-1
CMF C4 H8 O3

Relative stereochemistry.



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:756387 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 141:282877
TITLE: Highly branched polymers for biocompatible medical hydrogels and their manufacture from anhydrosugar

alcohols

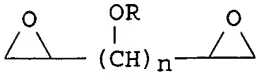
INVENTOR(S): Kaga, Haruo; Kakuchi, Toyoji; Sato, Toshifumi; Imai, Tomoko
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan

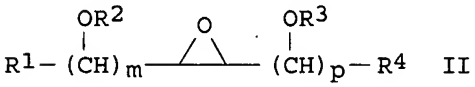
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256804	A	20040916	JP 2004-27160	20040203
JP 3721389	B2	20051130		
US 2005010023	A1	20050113	US 2004-768174	20040202

PRIORITY APPLN. INFO.: JP 2003-26406 A 20030203

GI


I


II

AB Title polymers are manufactured by polymerization of (di)anhydrosugar alcs. I and/or II (R, R1-R4 = H, C1-30 hydrocarbyl; ≥1 of R, R2, R3 = H; m 0-20; n = 1-10; p = 1-20; m + p = 1-20) optionally with anhydrosugars in the presence of cationic or anionic initiators. Thus, 1,2:5,6-dianhydro-D-mannitol was polymerized in the presence of BF3 etherate at 0° for 200 h in CH2Cl2 to give 41.8% highly branched polymer, which was soluble in H2O, MeOH, and Me2CO.

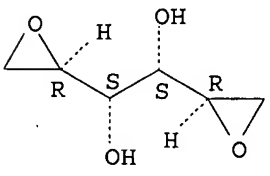
IT 603129-00-6P 756529-94-9P 756529-95-0P
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(manufacture of highly branched polymers from (di)anhydrosugar alcs. for biocompatible medical hydrogels)

RN 603129-00-6 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19895-66-0
CMF C6 H10 O4

Absolute stereochemistry.

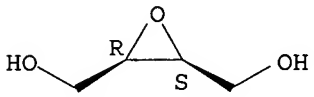


RN 756529-94-9 HCAPLUS
CN 2,3-Oxiranedimethanol, (2R,3S)-rel-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 57302-79-1
CMF C4 H8 O3

Relative stereochemistry.

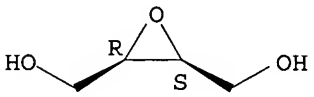


RN 756529-95-0 HCAPLUS
CN β-D-Mannopyranose, 1,6-anhydro-, polymer with (2R,3S)-rel-2,3-oxiranedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 57302-79-1
CMF C4 H8 O3

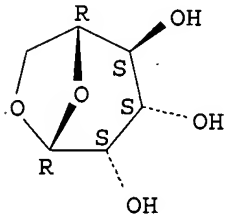
Relative stereochemistry.



CM 2

CRN 14168-65-1
CMF C6 H10 O5

Absolute stereochemistry.



L18 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:591563 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 139:261604
TITLE: Synthesis of Hyperbranched 2,5-Anhydro-D-glucitol by Proton-Transfer Cyclopolymerization of 1,2:5,6-Dianhydro-D-mannitol
AUTHOR(S): Imai, Tomoko; Satoh, Toshifumi; Kaga, Harumi; Kaneko, Noriaki; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Molecular Chemistry Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Macromolecules (2003), 36(17), 6359-6363

CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The cyclopolymn. of 1,2:5,6-dianhydro-D-mannitol (1) was carried out using BF3·OEt2 and t-BuOK. Although the anionic polymerization tended to form gels, the cationic polymerization proceeded through the proton-transfer reaction mechanism to produce hyperbranched carbohydrate polymers (2) mainly consisting of 2,5-anhydro-D-glucitol units. The weight-average mol. weight (Mw,SLS) values of 2 measured by static light scattering (SLS) varied in the range of 2.08 + 105-26.9 + 105, which were significantly higher than the weight-average mol. weight (Mw,SEC) values by size exclusion chromatog. (SEC). The degree of branching (DB), estimated by the 13C NMR measurements, was ca. 0.44-0.46. The α value of the Mark-Houwink equation, which was determined by the viscosity measurements, was ca. 0.3. The hyperbranched polymers 2 were nanoscale particle with the radii of gyration (Rg) of 67.4-132.0 nm.

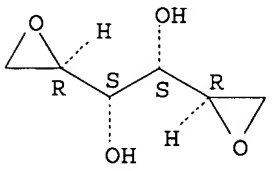
IT 603129-00-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of hyperbranched 2,5-anhydro-D-glucitol polymer by proton-transfer polymerization accompanied by ring-opening and ring-closure reaction of 1,2:5,6-dianhydro-D-mannitol and properties of obtained polymers)

RN 603129-00-6 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

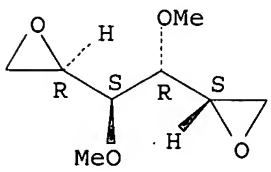
CRN 19895-66-0
CMF C6 H10 O4

Absolute stereochemistry.



L22 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1018195 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 143:460551
TITLE: Polymerization of 1,2:5,6-diepithio-3,4-di-O-methyl-D-mannitol, 1,2:5,6-diepithio-3,4-di-O-methyl-L-iditol, and 1,2:5,6-diepithio-3,4-di-O-methyl-allitol using zinc complexes: The regio- and stereoselectivities and asymmetric synthesis of thiosugar polymers
AUTHOR(S): Satoh, Toshifumi; Imai, Tomoko; Sugie, Norihiko; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Biotechnology and Macromolecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2005), 43(18), 4118-4125
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The diepisulfides 1,2:5,6-diepithio-3,4-di-O-methyl-D-mannitol (1a), 1,2:5,6-diepithio-3,4-di-O-methyl-L-iditol (1b), and 1,2:5,6-diepithio-3,4-di-O-methyl-allitol (1c) were polymerized using ZnEt2/H2O, ZnEt2/alc., and ZnEt2/(S or R)-1,1'-bi-2-naphthol (BN) as the initiator systems. All the polymns. proceeded without any gel formation and gave white, powdery products. The number-average mol. wts. of the polymers obtained were in the range of 5300-33,600. The polymerization of 1a using the ZnEt2/H2O (1/1) catalyst in THF proceeded through a regio- and stereoselective cyclopolymn. mechanism to produce thiosugar polymers mainly consisting of 2,5-anhydro-1,5-dithio-D-glucitol as the five-membered ring units. The polymers obtained from 1b and 1c with ZnEt2/H2O exhibited lower stereoregularities than that from 1a. For the polymers obtained from 1a with the ZnEt2/alc. systems, the molar fraction of the five-membered ring units depended on the alc. used as a ligand. On the other hand, the polymerization of 1c using ZnEt2/(R or S)-BN asym. proceeded, and optically active polymers consisting of desulfurized acyclic units were obtained. When ZnEt2/(R)-BN (1/1) was used in toluene, a polymer with [α]D23 = +56.9° was obtained in an 88.6% yield. The resulting polymer had an isotactic-rich structure consisting of about 90% (R)-configurational units and about 10% (S)-units.
IT 71242-82-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(regio- and stereoselectivities in polymerization of diepithio derivs. of D-mannitol, L-iditol, and allitol using zinc complexes)
RN 71242-82-5 HCAPLUS
CN Galactitol, 1,2:5,6-dianhydro-3,4-di-O-methyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.



REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:817993 HCAPLUS <<LOGINID::20070226>>

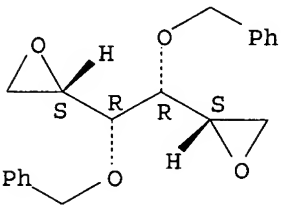
DOCUMENT NUMBER: 124:56506
TITLE: Synthesis of sugar-like amino-carboxylic acids from D-mannitol
AUTHOR(S): Poitout, Lydie; Le Merrer, Yves; Depezay, Jean-Claude
CORPORATE SOURCE: Lab. chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.
SOURCE: Tetrahedron Letters (1995), 36(38), 6887-90
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 124:56506

AB 6-Amino-2,5-anhydro-6-deoxy-D-gluconic and L-gulonic acid derivs., conformationally restricted sugar-like amino-carboxylic acids which mimic dipeptides, have been synthesized by a silica gel assisted azidolysis of enantiomerically pure bis-epoxides.

IT 157363-84-3 157363-85-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of aminoanhydrodeoxygluconic or -gulonic acid from mannitol)

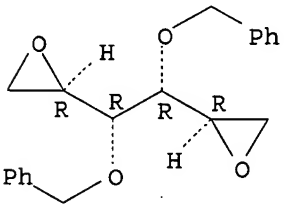
RN 157363-84-3 HCAPLUS
CN L-Iditol, 1,2:5,6-dianhydro-3,4-bis-O-(phenylmethyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 157363-85-4 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-3,4-bis-O-(phenylmethyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



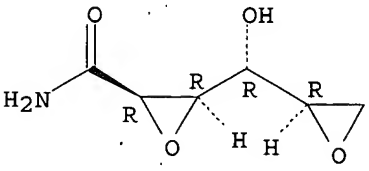
L22 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:580051 HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER: 121:180051
TITLE: Deoxyiminoalditols from aldonolactones. III. Preparation of 1,4-dideoxy-1,4-imino-L-gulitol. Evaluation of 1,4-dideoxy-1,4-iminohexitols as glycosidase inhibitors
AUTHOR(S): Lundt, Inge; Madsen, Robert; Al Daher, Samer; Winchester, Bryan
CORPORATE SOURCE: Dep. Org. Chem., Tech. Univ. Denmark, Lyngby, DK-2800,

Den.
SOURCE: Tetrahedron (1994), 50(25), 7513-20
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English

AB 2,6-Dibromo-2,6-dideoxy-D-altrono-1,4-lactone (I) was converted into a mixture of 2,3-anhydro-6-bromo-6-deoxy-D-allono-1,4- and -1,5-lactone, which by treatment with aqueous NH3 (25%) gave 3,6-dideoxy-3,6-imino-D-gluconic acid. Reduction of the dibromolactone I gave 2,6-dibromo-2,6-dideoxy-D-altritol (1,5-dibromo-1,5-dideoxy-D-talitol) (II) which was unstable since it was readily transformed into 3,6-anhydro-2-bromo-2-deoxy-D-altritol (III). Treatment of either II or III with aqueous NH3 (25%) gave 1-amino-1-deoxy-3,6-anhydro -D-allitol. The reaction of the bromo compds. with aqueous NH3 were followed by 13C NMR-spectroscopy. Evaluation of nine 1,4-dideoxy-1,4-iminohexitols with D- and L- allo, talo-, galacto-, ido- and with L-gluo-configurations as glycosidase inhibitors is reported.

IT 157598-79-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, in preparation of 1,4-dideoxy-1,4-iminohexitols as glycosidase inhibitors)
RN 157598-79-3 HCAPLUS
CN D-Allonamide, 2,3:5,6-dianhydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	18.41	368.42
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-2.34	-24.96

FILE 'STNGUIDE' ENTERED AT 19:19:53 ON 26 FEB 2007
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FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Feb 23, 2007 (20070223/UP).

=> fil hcaplus
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.18	368.60
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-24.96

10/768,174>27/02/2007

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L2             32 S L1 SSS SAM

     FILE 'HCAPLUS' ENTERED AT 18:59:12 ON 26 FEB 2007

     FILE 'REGISTRY' ENTERED AT 18:59:20 ON 26 FEB 2007
L3           1269 S L1 SSS FULL

     FILE 'HCAPLUS' ENTERED AT 18:59:39 ON 26 FEB 2007
L4           1381 S L3
L5         338969 S ?SUGAR?
L6             48 S L4 AND L5
L7             45 S L6 AND 1800<=PY<=2004
L8             26 S L6 AND ?DIANHYDRO?
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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 26 Feb 2007 VOL 146 ISS 10
FILE LAST UPDATED: 25 Feb 2007 (20070225/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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=> s l16 and l18
          9263 L16
L23          3 L16 AND L18

=> d l23 ti

L23  ANSWER 1 OF 3  HCAPLUS  COPYRIGHT 2007 ACS on STN
TI   Synthesis of Hyperbranched Polytetritol by Ring-Opening Multibranching
     Polymerizations of 2,3-Anhydroerythritol and 2,3-Anhydro-DL-threitol


=> d l23 ti 2-3

L23  ANSWER 2 OF 3  HCAPLUS  COPYRIGHT 2007 ACS on STN
TI   Highly branched polymers for biocompatible medical hydrogels and their
     manufacture from anhydrosugar alcohols

L23  ANSWER 3 OF 3  HCAPLUS  COPYRIGHT 2007 ACS on STN
TI   Synthesis of Hyperbranched 2,5-Anhydro-D-glucitol by Proton-Transfer
     Cyclopolymerization of 1,2:5,6-Dianhydro-D-mannitol


=> d l23 2 ibib abs hitstr

L23  ANSWER 2 OF 3  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2004:756387  HCAPLUS <<LOGINID::20070226>>
DOCUMENT NUMBER:          141:282877
TITLE:                    Highly branched polymers for biocompatible medical
                          hydrogels and their manufacture from anhydrosugar
                          alcohols
INVENTOR(S):              Kaga, Haruo; Kakuchi, Toyoji; Sato, Toshifumi; Imai,
                          Tomoko
PATENT ASSIGNEE(S):       National Institute of Advanced Industrial Science and
                          Technology, Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 16 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
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FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256804	A	20040916	JP 2004-27160	20040203
JP 3721389	B2	20051130		
US 2005010023	A1	20050113	US 2004-768174	20040202

PRIORITY APPLN. INFO.: JP 2003-26406 A 20030203
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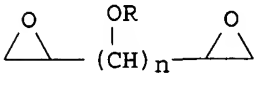
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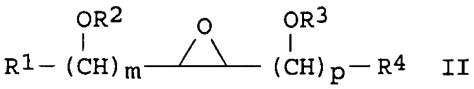
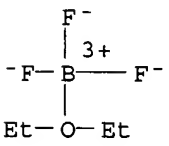

II

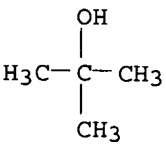
AB Title polymers are manufactured by polymerization of (di)anhydrosugar alcs. I and/or II (R, R1-R4 = H, C1-30 hydrocarbyl; ≥1 of R, R2, R3 = H; m 0-20; n = 1-10; p = 1-20; m + p = 1-20) optionally with anhydrosugars in the presence of cationic or anionic initiators. Thus, 1,2:5,6-dianhydro-D-mannitol was polymerized in the presence of BF3 etherate at 0° for 200 h in CH2Cl2 to give 41.8% highly branched polymer, which was soluble in H2O, MeOH, and Me2CO.

IT 109-63-7, Trifluoroboron etherate 865-47-4
87301-62-0, 2-Butenyl-tetramethylenesulfonium hexafluoroantimonate
RL: CAT (Catalyst use); USES (Uses)
(manufacture of highly branched polymers from (di)anhydrosugar alcs. for biocompatible medical hydrogels)

RN 109-63-7 HCAPLUS
CN Boron, trifluoro[1,1'-oxybis[ethane]]-, (T-4)- (9CI) (CA INDEX NAME)



RN 865-47-4 HCAPLUS
CN 2-Propanol, 2-methyl-, potassium salt (9CI) (CA INDEX NAME)

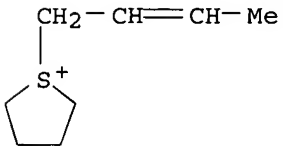


● K

RN 87301-62-0 HCAPLUS
CN Thiophenium, 1-(2-butenyl)tetrahydro-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

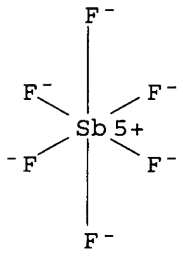
CM 1

CRN 52547-02-1
CMF C8 H15 S



CM 2

CRN 17111-95-4
CMF F6 Sb
CCI CCS

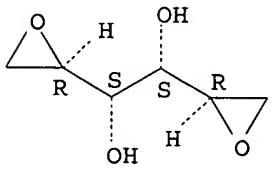


IT 603129-00-6P 756529-94-9P 756529-95-0P
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(manufacture of highly branched polymers from (di)anhydrosugar alcs. for biocompatible medical hydrogels)
RN 603129-00-6 HCAPLUS
CN D-Mannitol, 1,2:5,6-dianhydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19895-66-0
CMF C6 H10 O4

Absolute stereochemistry.

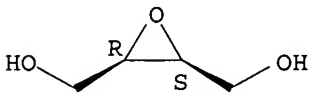


RN 756529-94-9 HCAPLUS
CN 2,3-Oxiranedimethanol, (2R,3S)-rel-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 57302-79-1
CMF C4 H8 O3

Relative stereochemistry.

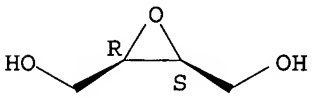


RN 756529-95-0 HCAPLUS
CN β-D-Mannopyranose, 1,6-anhydro-, polymer with (2R,3S)-rel-2,3-oxiranedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 57302-79-1
CMF C4 H8 O3

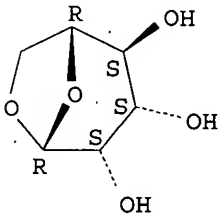
Relative stereochemistry.



CM 2

CRN 14168-65-1
CMF C6 H10 O5

Absolute stereochemistry.



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=> d his

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     FILE 'HCAPLUS' ENTERED AT 10:18:35 ON 27 FEB 2007
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L1          126 S (E3 OR E4)
                E KAKUCHI T/AU 25
L2          344 S (E3 OR E5)
                E SATOH T/AU 25
L3          597 S (E3 OR E136)
                E IMAI T/AU 25
L4          524 S (E3 OR E142)

=> s l1-l4
L5         1350 (L1 OR L2 OR L3 OR L4)

=> s ?sugar?
L6       338999 ?SUGAR?

=> s l6 and l5
L7          27 L6 AND L5

=> s ?anhydr?
          96858 ?ANHYD
         301175 ?ANHYDR?
          96858 ?ANHYD
          96839 ANHYD
              5 ANHYDS
          96842 ANHYD
                  (ANHYD OR ANHYDS)
L8       385953 ?ANHYDR?
                  (?ANHYDR? OR ?ANHYD OR ANHYD)

=> s l8 and l7
L9          16 L8 AND L7
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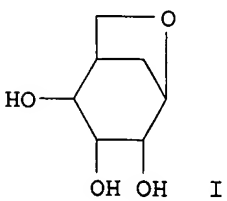
L9 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:304977 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 146:144548
TITLE: Novel synthetic method for preparing artificial carbohydrate polymers
AUTHOR(S): Satoh, Toshifumi; Imai, Tomoko; Kitajyo, Yoshikazu; Kakuchi, Toyoji
CORPORATE SOURCE: Graduate School of Engineering, Hokkaido University, N13W8, Kita-ku, Sapporo, 060-8628, Japan
SOURCE: Current Topics in Polymer Research (2005), 195-231. Editor(s): Bregg, Robert K. Nova Science Publishers, Inc.: Hauppauge, N. Y. CODEN: 69HYTR; ISBN: 1-59454-437-9
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review. The regio- and stereoselective cyclopolymn. of dianhydro sugar has been studied as a new synthetic method for preparing an artificial carbohydrate polymer lacking an anomeric linkage, which was quite different from naturally occurring polysaccharides. In addition, the synthesis of novel hyperbranched carbohydrate polymers, preparing by the ring-opening multibranching polymns. of anhydro and dianhydro sugars, has been described.
REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l9 ibib abs 2-16

L9 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:100071 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 144:171187
TITLE: Preparation of anhydro sugar by heating hexosans in high-boiling organic solvents
INVENTOR(S): Kaga, Haruo; Miura, Masakatsu; Narumi, Atsushi; Takahashi, Kenji; Sato, Toshifumi; Kakuchi, Toyoji
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science & Technology, Japan; Kanazawa University; Hokkaido University
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp. CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006028040	A	20060202	JP 2004-205787	20040713
PRIORITY APPLN. INFO.:			JP 2004-205787	20040713

GI



I

AB An anhydro sugar I, e.g. levoglucosan (II) is useful as a material for antitumor agents, anti-HIV agents, biodegradable polymers, etc., is prepared by homogeneously suspending hexosans or hexosan-containing materials in high-boiling organic solvents, heating the suspension at ordinary pressure and 190-300°, and isolating I from the reaction mixture using column chromatog. Thus, corn starch was suspended in sulfolane and irradiated with microwave at 240° for 5 min. The reaction mixture was purified by silica gel column chromatog. with EtOAc/hexane (1:1) for elution of sulfolane and EtOAc/MEOH (20:1) for II to give 39% II.

L9 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:505 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 144:254549
TITLE: Synthesis of unimolecular reversed micelle consisting of a poly(L-lactide) shell and hyperbranched D-mannan core
AUTHOR(S): Satoh, Toshifumi; Tamaki, Masaki; Kitajyo, Yoshikazu; Maeda, Takahiro; Ishihara, Hiroyuki; Imai, Tomoko; Kaga, Harumi; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Biotechnology and Macromolecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2005), Volume Date 2006, 44(1), 406-413
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel biodegradable unimol. reversed micelle consisting of a poly(L-lactide) (PLA) shell and a hyperbranched D-mannan (HBM) core, i.e., a chestnut-shaped polymer (PLA-HBM), was synthesized by the polymerization of L-lactide on HBM with 4-(dimethylamino)pyridine (DMAP) as the catalyst. The obtained polymers were soluble in DMSO, THF, and chloroform but insol. in H2O. The mol. wts. of the PLA chain on PLA-HBM tended to increase with increasing polymerization time. The number of PLA chains on PLA-HBM could be controlled by the ratio of DMAP to the sugar unit in HBM. The obtained copolymer, PLA-HBM, acted as a unimol. reversed micelle with an encapsulation ability toward the hydrophilic mol. In addition, the entrapped hydrophilic mols. were slowly released from the core of PLA-HBM, and the release rate was accelerated by the breaking of the PLA chains of the shell when proteinase K as a hydrolase of PLA was used.
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1199649 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 144:88474
TITLE: Regio- and stereoselective cyclizations of dianhydro sugar alcohols catalyzed by a chiral (salen)CoIII complex
AUTHOR(S): Satoh, Toshifumi; Imai, Tomoko; Umeda, Satoshi; Tsuda, Katsuyuki; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Biotechnology and Macromolecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Carbohydrate Research (2005), 340(17), 2677-2681
CODEN: CRBRAT; ISSN: 0008-6215
PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:88474
AB The (R,R)- and (S,S)-(salen)CoIIIOAc catalyzed cyclization of the chiral dianhydro sugars, 1,2:5,6-dianhydro -3,4-di-O-methyl-D-glucitol (I), 1,2:5,6-dianhydro -3,4-di-O-methyl-D-mannitol (II), 1,2:5,6-dianhydro -3,4-di-O-methyl-L-iditol, and 1,2:4,5-dianhydro -3-O-methyl-L-arabinitol (III), is a facile method for the synthesis of anhydro-alditol alcs. Cyclization of I using (R,R)- and (S,S)-(salen)CoIIIOAc proceeded diastereoselectively to form 2,5-anhydro-3,4-di-O-methyl-D-mannitol and 2,5-anhydro -3,4-di-O-methyl-L-iditol, resp. The cyclization of II and III is a novel method for obtaining 1,6-anhydro-3,4-di-O-methyl-D-mannitol and a stereoselective route to 1,5-anhydro-3-O-methyl-L-arabinitol. It is proposed that the reaction occurs via endo-selective cyclization of an epoxy alc. produced by the endo-selective ring-opening of one of the two epoxide moieties in the starting material.
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1018195 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 143:460551
TITLE: Polymerization of 1,2:5,6-diepithio-3,4-di-O-methyl-D-mannitol, 1,2:5,6-diepithio-3,4-di-O-methyl-L-iditol, and 1,2:5,6-diepithio-3,4-di-O-methyl-allitol using zinc complexes: The regio- and stereoselectivities and asymmetric synthesis of thiosugar polymers
AUTHOR(S): Satoh, Toshifumi; Imai, Tomoko; Sugie, Norihiko; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Biotechnology and Macromolecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2005), 43(18), 4118-4125
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The diepisulfides 1,2:5,6-diepithio-3,4-di-O-methyl-D-mannitol (1a), 1,2:5,6-diepithio-3,4-di-O-methyl-L-iditol (1b), and 1,2:5,6-diepithio-3,4-di-O-methyl-allitol (1c) were polymerized using ZnEt2/H2O, ZnEt2/alc., and ZnEt2/(S or R)-1,1'-bi-2-naphthol (BN) as the initiator systems. All the polymns. proceeded without any gel formation and gave white, powdery products. The number-average mol. wts. of the polymers obtained were in the range of 5300-33,600. The polymerization of 1a using the ZnEt2/H2O (1/1) catalyst in THF proceeded through a regio- and stereoselective cyclopolymn. mechanism to produce thiosugar polymers mainly consisting of 2,5-anhydro-1,5-dithio-D-glucitol as the five-membered ring units. The polymers obtained from 1b and 1c with ZnEt2/H2O exhibited lower stereoregularities than that from 1a. For the polymers obtained from 1a with the ZnEt2/alc. systems, the molar fraction of the five-membered ring units depended on the alc. used as a ligand. On the other hand, the polymerization of 1c using ZnEt2/(R or S)-BN asym. proceeded, and optically active polymers consisting of desulfurized acyclic units were obtained. When ZnEt2/(R)-BN (1/1) was used in toluene, a polymer with [α]D23 = +56.9° was obtained in an 88.6% yield. The resulting polymer had an isotactic-rich structure consisting of about 90% (R)-configurational units and about 10% (S)-units.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:727762 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 144:312648
TITLE: Synthesis and encapsulation-release property of star-shaped polylactide having hyperbranched D-mannan as a core
AUTHOR(S): Satoh, Toshifumi; Tamaki, Masaki; Kitajyo, Yoshikaeu; Imai, Tomoko; Kaga, Harumi; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Biotechnology and Macromolecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2005), 46(2), 1032-1033
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
AB The novel amphiphilic star-shaped polylactide having hyperbranched D-mannan as a core (PLA-HBM) was synthesized by the polymerization of L-lactide on hyperbranched D-mannan (HBM) with 4-(dimethylamino)pyridine (DMAP) as a catalyst. The obtained copolymers were white solids soluble in DMSO, THF, and chloroform but insol. in H2O. The mol. wts. of PLA chain in PLA-HBM tended to increase with the increasing polymerization time. The number of PLA chain in PLA-HBM could be controlled by the ratio of DMAP to sugar unit in HBM. The amphiphilic polymers, PLA-HBM, acted as unimol. micelle with the encapsulation ability toward the hydrophilic mol. In addition, the entrapped hydrophilic mols. were released slowly from the core of PLA-HBM and the release rate was accelerated by breaking the PLA chain of the shell when proteinase K was used. Hence, the unimol. micelle, PLA-HBM, was a good candidate for biodegradable controlled-release systems.
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:756387 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 141:282877
TITLE: Highly branched polymers for biocompatible medical hydrogels and their manufacture from anhydrosugar alcohols
INVENTOR(S): Kaga, Haruo; Kakuchi, Toyoji; Sato, Toshifumi; Imai, Tomoko
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256804	A	20040916	JP 2004-27160	20040203
JP 3721389	B2	20051130		
US 2005010023	A1	20050113	US 2004-768174	20040202
PRIORITY APPLN. INFO.:			JP 2003-26406 A	20030203

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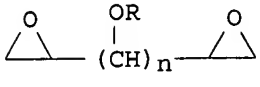
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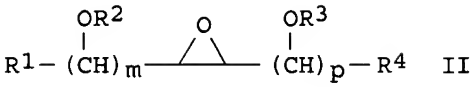
II

AB Title polymers are manufactured by polymerization of (di)anhydrosugar alcs. I and/or II (R, R1-R4 = H, C1-30 hydrocarbyl; ≥1 of R, R2, R3 = H; m 0-20; n = 1-10; p = 1-20; m + p = 1-20) optionally with anhydrosugars in the presence of cationic or anionic initiators. Thus, 1,2:5,6-dianhydro-D-mannitol was polymerized in the presence of BF_3 etherate at 0° for 200 h in CH_2Cl_2 to give 41.8% highly branched polymer, which was soluble in H_2O, MeOH, and Me_2CO.

L9 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:37522 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 140:407005
TITLE: Cyclopolymerization of dianhydro sugar leading to novel carbohydrate polymers as macromolecular ionophores
AUTHOR(S): Satoh, Toshifumi; Kakuchi, Toyoji
CORPORATE SOURCE: Graduate School of Engineering, Division of Molecular Chemistry, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Progress in Polymer Science (2004), 29(1), 13-43
CODEN: PRPSB8; ISSN: 0079-6700
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with refs. The regio- and stereoselective cyclopolymn. of 1,2:5,6-dianhydrohexitol, 1,2:4,5-dianhydropentitol, and 1,2:5,6-diepithio-1,2:5,6-tetradeoxy-hexitol has been studied as a new synthetic method for preparing artificial carbohydrate polymers lacking an anomeric linkage, quite different from the structure of naturally occurring polysaccharides. The carbohydrate polymers consisting of (1,6)-linked 2,5-anhydrohexitol as five-membered ring units were formed by the cyclopolymns. of 1,2:5,6-dianhydro -3,4-di-O-alkyl-D-mannitol, -L-iditol, -D-glucitol, and -allitol, while the formation of six-membered ring units was found in a polymer prepared by the cyclopolymn. of 1,2:5,6-dianhydro-3,4-di-O-alkyl-galactitol. In addition, the anionic cyclopolymn. of 1,2:5,6-dianhydrohexitol produced a well-defined carbohydrate polymer. The cationic cyclopolymn. of 1,2:4,5-dianhydro-3-O-methylxylitol proceeded regio- and stereoselectively to produce a novel carbohydrate polymer consisting of mainly (2 5)-linked 1,4-anhydro-3-O-methyl-dl-arabinitol as five-membered ring units. The cationic and anionic cyclopolymns. of 1,2:5,6-diepithio-1,2,5,6-tetradeoxy-3,4-di-O-methyl-D-mannitol and 1,2:5,6-diepithio-1,2,5,6-tetradeoxy-3,4-di-O-methyl-l-iditol were a novel method for producing sulfur-containing carbohydrate polymers, i.e. thio-sugar polymers. These carbohydrate polymers acted as a macromol. ionophore, which exhibited size-selective cation-binding ability for metal cations and chiral discrimination ability for racemic amino acid derivs. They were applied to optical resolution systems as liquid and solid membranes and, chiral stationary phase in HPLC.
REFERENCE COUNT: 128 THERE ARE 128 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:711629 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 139:230950
TITLE: Preparation of multibranched polysaccharides as

biocompatible hydrogels or medical materials
INVENTOR(S): Kakuchi, Toyoji; Sato, Toshifumi
PATENT ASSIGNEE(S): Japan Science and Technology Corporation, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003252904	A	20030910	JP 2002-56901	20020304
PRIORITY APPLN. INFO.:			JP 2002-56901	20020304

AB The polysaccharides are prepared by polymerization of 1,6-, 1,4-, 1,3-, 1,2-, and/or 5,6-anhydro sugars (structures are given) in the presence of cationic or anionic initiator. 1,6-Anhydro -β-D-glucopyranose was polymerized in propylene carbonate in the presence of 2-butynyltetramethylenesulfonium hexafluoroantimonate at 130° for 30 min to give 31.8% branched polysaccharide.

L9 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:777032 HCAPLUS <<LOGINID::20070227>>
TITLE: Synthesis of hyperbranched polysaccharide by thermally-induced cationic polymerization of 1,6-anhydro sugar
AUTHOR(S): Satoh, Toshifumi; Ishihara, Hiroyuki; Maeda, Takahiro; Kaga, Harumi; Kakuchi, Toyoji
CORPORATE SOURCE: Graduate School of Engineering, Hokkaido University, Sapporo 060-8628, Japan
SOURCE: Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), POLY-013. American Chemical Society: Washington, D. C..
CODEN: 69CZPZ
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB The thermally induced cationic polymerization of 1,6-anhydro -beta-D-mannopyranose (1) and 1,6-anhydro-beta-D-glucopyranose (2) were carried out using 2-butenyl-tetramethylenesulfonium hexafluoroantimonate (3) to produce a hyperbranched polysaccharide. For the polymerization using propylene carbonate as a solvent, the yields and the weight-average mol. wts. (Mw,SLS) of the polysaccharide gradually increased with the increasing monomer concentration When the [1]/[3] molar ratio of 700 were used for 40 min at 150 degree C, the Mw,SLS of the resulting polysaccharide was 10,500, corresponding to the d.p. of ca. 65. The polydispersities of the resulting polysaccharides were relatively narrow with a value in the range of 1.22 to 1.43. For the measurements of the mol. weight, the Mw,SLS was greater than the Mw,SLS, indicating that the polysaccharide is highly branched spherical mols., i.e., hyperbranched polysaccharide. Therefore, the polymerization is a useful method for preparing a hyperbranched polysaccharide with a narrow polydispersity.

L9 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:626726 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 138:4755
TITLE: Synthesis of hyperbranched polysaccharide by thermally induced cationic polymerization of 1,6-anhydrosugar
AUTHOR(S): Satoh, Toshifumi; Ishihara, Hiroyuki; Maeda, Takahiro; Kaga, Harumi; Kakuchi, Toyoji

CORPORATE SOURCE: Division of Mol. Chemistry, Graduate School of Eng., Hokkaido Univ., Kita-ku, Sapporo, 060-8628, Japan
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(2), 999-1000
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:4755
AB A novel synthetic method for the preparation of hyperbranched polysaccharides, with narrow polydiversity is reported.
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:255310 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 137:33627
TITLE: Bulk cyclopolymerization of 1,2:5,6-diepithio-3,4-di-O-methyl-1,2:5,6-tetradeoxy-D-mannitol with quaternary ammonium salts leading to gel-free thiosugar polymer
AUTHOR(S): Satoh, Toshifumi; Imai, Tomoko; Sugie, Norihiko; Nonokawa, Ryuji; Yokota, Kazuaki; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Molecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2002), 40(8), 965-970
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The bulk cyclopolymn. of diepisulfide, 1,2:5,6-diepithio-3,4-di-O-methyl-1,2:5,6-tetradeoxy-D-mannitol (1), was studied using R4N+Br- (R=CH3, C2H5, C3H7, C4H9, and C7H15) and (C4H9)4N+X- (X=Cl, I, NO3, and ClO4) as the initiators. All the bulk polymns. of 1 using quaternary tetraalkylammonium salts at 90°C proceeded without gelation even at high conversion to produce gel-free polymers consisting of 2,5-anhydro-1,5-dithio-D-glucitol (I) as the major cyclic repeating unit along with 1,5-anhydro-2,5-dithio-D-mannitol (II) and the desulfurized acyclic unit (III) as the minor units. The polymerization rate and molar fraction of the I unit increased with the increasing alkyl chain length of the tetraalkylammonium cation and the increasing nucleophilicity of the counter anion. Tetrabutylammonium chloride exhibited the highest catalytic activity and the highest stereoselectivity, i.e., the thiosugar polymer with I:II:III=81:15:4 and a number-average mol. weight of 31.9+103 was obtained in 85% yield for a polymerization time of 0.5 h.
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:96832 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 137:95392
TITLE: Microwave pyrolysis of cellulosic materials for the production of anhydrosugars
AUTHOR(S): Miura, Masakatsu; Kaga, Harumi; Yoshida, Takashi; Ando, Koji
CORPORATE SOURCE: National Institute of Advanced Industrial Science and Technology (AIST), Sapporo, 062-8517, Japan
SOURCE: Journal of Wood Science (2001), 47(6), 502-506
CODEN: JWSCFG; ISSN: 1435-0211

PUBLISHER: Springer-Verlag Tokyo
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Large-scale microwave rapid pyrolysis of cellulosic materials was investigated. Levoglucosan (1,6-anhydro-β-D-glucopyranose) (I) was obtained from a larch log as the main anhydro-sugar in 2.6% yield on the basis of dry wood weight This yield would be much higher than that obtainable by conventional pyrolysis in the large-scale reaction. Levoglucosenone (1,6-anhydro -3,4-dideoxy-β-D-glycero-hex-3-enopyranos-2-ulose) was shown to be produced in one-quarter the amount of I. Other anhydro-sugars, e.g. mannosan (1,6-anhydro-β-D-mannopyranose), galactosan (1,6-anhydro-β-D-galactopyranose), and xylosan (1,4-anhydro-α-D-xylopyranose), were also confirmed to be produced as minor components depending on the proportion of the monosaccharide content in the larch. When microwave pyrolysis of used papers and filter papers was performed, the yields of I were about 6% and 12%, resp., suggesting that a higher content of cellulose gives a larger amount of I.
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:396978 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 133:151046
TITLE: Cyclopolymerization of 1,2:5,6-Diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-D-mannitol and -L-iditol Leading to a Novel Thiosugar Polymer
AUTHOR(S): Satoh, Toshifumi; Kitazawa, Daisuke; Nonokawa, Ryuji; Kamada, Masatoshi; Yokota, Kazuaki; Hashimoto, Hisaho; Kakuchi, Toyoji
CORPORATE SOURCE: Division of Molecular Chemistry Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan
SOURCE: Macromolecules (2000), 33(14), 5303-5307
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The cyclopolymn. of 1,2:5,6-diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-D-mannitol and its diastereoisomer 1,2:5,6-diepithio-3,4-di-O-methyl-1,2,5,6-tetradeoxy-L-iditol was carried out using cationic and anionic initiators BF3·OEt2, SnCl4, and t-BuOK. The anionic cyclopolymn. proceeded through intramol. cyclization with α-scission and intermol. reaction with β-scission to yield polymers consisting of five-membered cyclic units. The thiosugar polymer structure comprises 2,5-anhydro-1,5-dithio-3,4-di-O-methyl-D-glucitol as the major repeating unit. Although the polymerization rate using t-BuOK was higher than that using BF3·OEt2 and SnCl4, the stereoregularity of the resulting polymer was lower.
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:208082 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 133:17713
TITLE: Facile synthesis of dextran by cationic ring-opening polymerization of 1,6-anhydro -2,3,4-tri-O-allyl-β-D-glucopyranose
AUTHOR(S): Kusuno, Atsushi; Kakuchi, Toyoji; Miura, Masakatsu; Kaga, Harumi
CORPORATE SOURCE: Graduate School of Environmental Earth, Science, Hokkaido University, Sapporo, 060-0810, Japan

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(1), 146-147
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The ring-opening polymerization of 1,6-anhydro-2,3.4-tri-O-allyl-p-D-glucopyranose (1a) has been studied as the preparative method for dextran. The cationic polymerization of 1a proceeded through the regio- and stereoselective ring-opening mechanism to yield the novel dextran derivative, i.e., 2,3,4-tri-O-allyl-(1-6)-α-D-glucopyranan (2a). In order to remove the ally group, the ally ether linkage in 2a was isomerized using the rhodium catalyst to the propenyl ether derivative 2,3,4-tri-O-propenyl-(1-6)-α-D-glucopyranan (3). Dextran, (1-6)-α-D-glucopyranan, was easily obtained by the acid-catalyzed hydrolysis of 3. The method using the ally ether linkage as the hydroxyl protecting group should be applied to produce polysaccharide through the ring-opening polymerization of anhydro sugars.
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:105314 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 100:105314
TITLE: The pyrolysis of cellulosic materials and the analysis of levoglucosan in the tar
AUTHOR(S): Miura, Masakatsu; Kaga, Harumi; Nishizaki, Hiroki
CORPORATE SOURCE: Gov. Ind. Dev. Lab., Sapporo, 061-01, Japan
SOURCE: Mokuzai Gakkaishi (1983), 29(11), 756-62
CODEN: MKZGA7; ISSN: 0021-4795
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB The levoglucosan (I) [498-07-7] content of the tars obtained upon pyrolysis of various cellulosic materials in vacuo was determined by thin-layer chromtog., IR spectrophotometry, and gas chromatog. The tar was then converted into glucose (II) [50-99-7] by hydrolysis with dilute H2SO4. The yields of I were .apprx.2% from wood and .apprx.22% for filter paper. The amount of II was 1.6-2.6 times higher than that of I, indicating the presence of anhydro-sugars other than I in the tar.

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E KAKUCHI T/AU 25
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E SATOH T/AU 25
L3 597 S (E3 OR E136)
E IMAI T/AU 25
L4 524 S (E3 OR E142)
L5 1350 S L1-L4
L6 338999 S ?SUGAR?
L7 27 S L6 AND L5
L8 385953 S ?ANHYDR?
L9 16 S L8 AND L7

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NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
NEWS	2		"Ask CAS" for self-help around the clock
NEWS	3	OCT 23	The Derwent World Patents Index suite of databases on STN has been enhanced and reloaded

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 NEWS  4  OCT 30  CHEMLIST enhanced with new search and display field
 NEWS  5  NOV 03  JAPIO enhanced with IPC 8 features and functionality
 NEWS  6  NOV 10  CA/CAplus F-Term thesaurus enhanced
 NEWS  7  NOV 10  STN Express with Discover! free maintenance release Version
                  8.01c now available
 NEWS  8  NOV 20  CA/CAplus to MARPAT accession number crossover limit increased
                  to 50,000
 NEWS  9  DEC 01  CAS REGISTRY updated with new ambiguity codes
 NEWS 10  DEC 11  CAS REGISTRY chemical nomenclature enhanced
 NEWS 11  DEC 14  WPIDS/WPINDEX/WPIX manual codes updated
 NEWS 12  DEC 14  GBFULL and FRFULL enhanced with IPC 8 features and
                  functionality
 NEWS 13  DEC 18  CA/CAplus pre-1967 chemical substance index entries enhanced
                  with preparation role
 NEWS 14  DEC 18  CA/CAplus patent kind codes updated
 NEWS 15  DEC 18  MARPAT to CA/CAplus accession number crossover limit increased
                  to 50,000
 NEWS 16  DEC 18  MEDLINE updated in preparation for 2007 reload
 NEWS 17  DEC 27  CA/CAplus enhanced with more pre-1907 records
 NEWS 18  JAN 08  CHEMLIST enhanced with New Zealand Inventory of Chemicals
 NEWS 19  JAN 16  CA/CAplus Company Name Thesaurus enhanced and reloaded
 NEWS 20  JAN 16  IPC version 2007.01 thesaurus available on STN
 NEWS 21  JAN 16  WPIDS/WPINDEX/WPIX enhanced with IPC 8 reclassification data
 NEWS 22  JAN 22  CA/CAplus updated with revised CAS roles
 NEWS 23  JAN 22  CA/CAplus enhanced with patent applications from India
 NEWS 24  JAN 29  PHAR reloaded with new search and display fields
 NEWS 25  JAN 29  CAS Registry Number crossover limit increased to 300,000 in
                  multiple databases
 NEWS 26  FEB 13  CASREACT coverage to be extended
 NEWS 27  Feb 15  PATDPASPC enhanced with Drug Approval numbers
 NEWS 28  Feb 15  RUSSIAPAT enhanced with pre-1994 records
 NEWS 29  Feb 23  KOREAPAT enhanced with IPC 8 features and functionality
 NEWS 30  Feb 26  MEDLINE reloaded with enhancements
 NEWS 31  Feb 26  EMBASE enhanced with Clinical Trial Number field
 NEWS 32  Feb 26  TOXCENTER enhanced with reloaded MEDLINE
 NEWS 33  Feb 26  IFICDB/IFIPAT/IFIUDB reloaded with enhancements
 NEWS 34  Feb 26  CAS Registry Number crossover limit increased from 10,000
                  to 300,000 in multiple databases

 NEWS EXPRESS  NOVEMBER 10 CURRENT WINDOWS VERSION IS V8.01c, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 25 SEPTEMBER 2006.

 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
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 NEWS IPC8     For general information regarding STN implementation of IPC 8
 NEWS X25      X.25 communication option no longer available

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=> E SCHUERCH C/AU 25
E1           17     SCHUERCH BEAT/AU
E2            1     SCHUERCH BEATRICE/AU
E3           14 --> SCHUERCH C/AU
E4          154     SCHUERCH CONRAD/AU
E5           10     SCHUERCH CONRAD JR/AU
E6            2     SCHUERCH CORNELIA/AU
E7            2     SCHUERCH D/AU
E8            1     SCHUERCH DANIEL W/AU
E9            2     SCHUERCH DAVID/AU
E10           4     SCHUERCH FRIEDRICH/AU
E11           1     SCHUERCH FRIEDRICH S/AU
E12           1     SCHUERCH G/AU
E13           1     SCHUERCH GEORG/AU
E14           3     SCHUERCH H/AU
E15           2     SCHUERCH H U/AU
E16           6     SCHUERCH HANS U/AU
E17           2     SCHUERCH HEINZ/AU
E18           1     SCHUERCH KURT/AU
E19           1     SCHUERCH LEANDER V/AU
E20           3     SCHUERCH M/AU
E21           2     SCHUERCH M A/AU
E22           1     SCHUERCH M L/AU
E23           1     SCHUERCH M PRATT/AU
E24           2     SCHUERCH MARC/AU
E25           1     SCHUERCH MARKUS/AU

=> S (E3 OR E4 OR E5)
            14 "SCHUERCH C"/AU
           154 "SCHUERCH CONRAD"/AU
            10 "SCHUERCH CONRAD JR"/AU
L1         178 ("SCHUERCH C"/AU OR "SCHUERCH CONRAD"/AU OR "SCHUERCH CONRAD JR"/AU)

=> s ?sugar? or ?glucose? or polymer?
        338999 ?SUGAR?
        427319 ?GLUCOSE?
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       1949493 POLYMER?
         88250 POLYMD
         88250 POLYMD
                 (POLYMD)
         33568 POLYMG
        345928 POLYMN
          9103 POLYMNS
        347112 POLYMN
                 (POLYMN OR POLYMNS)
       2019355 POLYMER?
                 (POLYMER? OR POLYMD OR POLYMG OR POLYMN)
L2     2676594 ?SUGAR? OR ?GLUCOSE? OR POLYMER?

=> s l1 and l2
L3           96 L1 AND L2

=> s ?sugar? or ?glucose?
        338999 ?SUGAR?
        427319 ?GLUCOSE?
L4      682389 ?SUGAR? OR ?GLUCOSE?

=> s l1 and l4
L5           52 L1 AND L4

=> s ?anhydro?
         96858 ?ANHYD
         36781 ?ANHYDRO?
         96858 ?ANHYD
         96839 ANHYD
             5 ANHYDS
         96842 ANHYD
                 (ANHYD OR ANHYDS)
L6      126600 ?ANHYDRO?
                 (?ANHYDRO? OR ?ANHYD OR ANHYD)

=> s l5 and l6
L7           31 L5 AND L6

=> s ?polymer?
        109620 ?POLYMD
       2243620 ?POLYMER?
        109620 ?POLYMD
         88250 POLYMD
         88250 POLYMD
                 (POLYMD)
         41517 ?POLYMG
         33568 POLYMG
        390321 ?POLYMN
        345928 POLYMN
          9103 POLYMNS
        347112 POLYMN
                 (POLYMN OR POLYMNS)
L8     2304462 ?POLYMER?
                 (?POLYMER? OR ?POLYMD OR POLYMD OR ?POLYMG OR POLYMG OR ?POLYM
                 N OR POLYMN)

=> s l7 and l8
L9           26 L7 AND L8

=> d l9 ibib abs

L9   ANSWER 1 OF 26  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:        1985:167264  HCAPLUS <<LOGINID::20070227>>
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DOCUMENT NUMBER: 102:167264
TITLE: Synthesis of (1 → 3)-α-D-glucopyranan by stereoregular cationic polymerization of substituted 2,6-dioxabicyclo[3.1.1]heptanes: 1,3-anhydrotri-(p-substituted-benzyl)-β-D-glucopyranoses
AUTHOR(S): Good, Frederick J., Jr.; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Macromolecules (1985), 18(4), 595-9
CODEN: MAMOBX; ISSN: 0024-9297
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polymerization of 1,3-anhydro-2,4,6-tris(O-p-bromobenzyl)-β-D-glucopyranose (I) [89243-40-3] by (CH3SO2)2O [358-23-6] or CF3SO3Ag [2923-28-6] gave stereoregular derivs. of (1→3)-α-D-glucopyranan (II) [27707-45-5]; other initiators were less stereoselective. Polymerization of the I benzyl analog [76543-11-8] was slightly less stereoregular under the best conditions, and the I p-methylbenzyl analog [89243-41-4] gave only oligomers. Debenzylation of the polymers, which were characterized by 13C NMR, polarimetry, gel chromatog., vapor-phase osmometry, and intrinsic viscosity, gave linear II, which was characterized by 13C NMR, polarimetry, and complete hydrolysis to glucose by CF3CO2H.

=> d l9 ibib abs 2-26

L9 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:167053 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 102:167053
TITLE: Steric control in the polymerization of 1,2-anhydro-3,4,6-tri-O-benzyl-β-D-mannopyranose
AUTHOR(S): Trumbo, David L.; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Carbohydrate Research (1985), 135(2), 195-202
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 102:167053
AB Polymerization of 1,2-anhydro-3,4,6-tri-O-benzyl-β-D-mannopyranose under acid catalysis has led to a series of polymers varying in anomeric configuration from .apprx.90% α to 70% β. Optical rotations follow 13C-NMR ests. of anomeric composition linearly over this range. Low-temperature polymerization with (CF3SO2)2O as initiator favors mainly cis-opening of the anhydro ring, presumably through the intermediary of a macroester. These results are compared with related glycosylation and polymerization reactions on 1,2-anhydro sugar derivs., and some mechanistic conclusions are proposed.

L9 ANSWER 3 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:113832 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 102:113832
TITLE: Ring-opening polymerization of 1,2-anhydro-3,4,6-tri-O-benzyl-β-D-mannopyranose and 5,6-anhydro-1,2-O-isopropylidene-α-D-glucofuranose by zinc-methoxypropanol complex catalyst
AUTHOR(S): Uryu, Toshiyuki; Harima, Kazunari; Tsuruta, Teiji; Suzuki, Chiaki; Yoshino, Norio; Schuerch,

Conrad
CORPORATE SOURCE: Inst. Ind. Sci., Univ. Tokyo, Tokyo, 106, Japan
SOURCE: Journal of Polymer Science, Polymer Chemistry Edition (1984), 22(11, Pt. 2), 3593-8
CODEN: JPLCAT; ISSN: 0449-296X
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB Polymerization of anhydromannopyranose I (R = PhCH2) and anhydroglucofuranose II in the presence of Zn-DL-MeOCH2CHMeOH complexes gave mannopyranan III and glucofuranan IV, resp., with high mol. weight The stereoregularity of III was determined by NMR spectroscopy.

L9 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1981:569609 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 95:169609
TITLE: Synthesis and polymerization of anhydro sugars
AUTHOR(S): Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. Forest., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Advances in Carbohydrate Chemistry and Biochemistry (1981), 39, 157-212
CODEN: ACBYAP; ISSN: 0065-2318
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 157 refs.

L9 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1981:425430 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 95:25430
TITLE: A substituent effect in the polymerization of 1,6-anhydro-2,3,4-tri-O-(p-bromobenzyl)-β-D-glucopyranose
AUTHOR(S): Ito, Hiroshi; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Journal of Polymer Science, Polymer Letters Edition (1981), 19(2), 43-7
CODEN: JPYBAN; ISSN: 0360-6384
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polymerization of 1,6-anhydro-2,3,4-tri-O-(p-bromobenzyl)-β-D-glucopyranose (I), 1,6- anhydro-2,3,4-tri-O-benzyl-β-D-glucopyranose (II), and copolymn. of I with II were studied. There was very little difference in the polymns. of I and II, but there was a marked difference between I and II in the copolymn. The use of p-bromobenzyl substituents instead of benzyl substituents on anhydro sugars have at least 2 possible applications. The difference in the reactivity compared to benzylated anhydro sugars may permit the formation of copolymers of wider range of compns. and sequence distributions, and the higher m.ps. may in some cases make the monomers more tractable exptl., especially when benzylated monomers are syrups or low melting.

L9 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1981:84397 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 94:84397
TITLE: Synthesis of substituted 2,6-dioxabicyclo[3.1.1]heptanes. 1,3-Anhydro -2,4,6-tri-O-benzyl- and 1,3-anhydro -2,4,6-tri-O-(p-bromobenzyl)-β-D-mannopyranose
AUTHOR(S): Varma, Anjani J.; Schuerch, Conrad

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	10	((TOYOJI) near2 (KAKUCHI)).INV.	US-PGPUB; USPAT	NEAR	ON	2007/02/27 17:00
S1	3	((HARUMI) near2 (KAGA)).INV.	US-PGPUB; USPAT	NEAR	ON	2007/02/27 11:17
S2	2	((HARUMI) near2 (KAGA)).INV.	EPO; JPO; DERWENT	NEAR	ON	2007/02/26 18:44
S4	36	((TOYOJI) near2 (KAKUCHI)).INV.	EPO; JPO; DERWENT	NEAR	ON	2007/02/26 18:46
S5	10	((TOSHIFUMI) near2 (SATOH)). INV.	US-PGPUB; USPAT	NEAR	ON	2007/02/26 18:46
S6	5	((TOSHIFUMI) near2 (SATOH)). INV.	EPO; JPO; DERWENT	NEAR	ON	2007/02/26 18:45
S7	2	("2004242919").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/27 11:17
S8	2	"2004242919"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:17
S9	0	US2004242919	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:17
S10	0	("US2004242919").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/27 11:18
S11	4517	(kunz).inv.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:18

EAST Search History

S12	686	(mang).inv.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:18
S13	0	S12 and S10	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:18
S14	8	S12 and S11	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2007/02/27 11:18

CORPORATE SOURCE: Coll. Environ. Sci. Forest., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Journal of Organic Chemistry (1981), 46(4), 799-803
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,3-Anhydro-2,4,6-tri-O-benzyl- and 1,3-anhydro -2,4,6-tri-O-(p-bromobenzyl)-β-D-mannopyranose were synthesized by a reaction sequence involving blocking the C-3 OH with an allyl group by first forming a dibutylstannylene complex between the C-1 and C-3 OH groups of Me 6-O-trityl-α-D-mannopyranoside. The product was then detritylated, fully acetylated, carefully purified, and then benzylated. Acid hydrolysis removed the C-1 OMe group, while the C-3 allyl was removed by conventional methods. Reaction with HCl in ether led to the mannopyranosyl chlorides, which in the presence of strong bases like NaH and tert-BuOK yielded the desired anhydro sugars.
These compds. are the required precursors for the synthesis of 1,3-mannopyranans by ring-opening polymns.

L9 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1979:457582 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 91:57582
TITLE: Copolymerization of 1,6-anhydro -β-D-galactopyranose and 1,6- anhydro -β-D-mannopyranose derivatives
AUTHOR(S): Ito, Hiroshi; Marousek, Valdimir; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, 13210, USA
SOURCE: Journal of Polymer Science, Polymer Chemistry Edition (1979), 17(5), 1299-307
CODEN: JPLCAT; ISSN: 0449-296X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,6-Anhydro-2,3,4-tri-O-(p-methylbenzyl)-β-D-galactopyranose (I) [70513-25-6] has been copolymd. with 1,6-anhydro-2,3,4-tri-O-benzyl-β-D-mannopyranose (II) [20888-02-2] and the reactivity ratios r1 = 0.37 ± 0.15 and r2 = 38 ± 4 indicate that II is about 100 times as reactive as I. A comparison of glucose, mannose, and galactose copolymns. suggest that the reactivity differences of the 3 propagating cations are comparatively small and the reactivity differences of the monomers large. This result is consistent with a previous mechanism. Me substitution on the aromatic rings of the p-xylyl groups inhibits the initiation process significantly relative to benzyl, but propagation is only slightly affected.

L9 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1978:615788 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 89:215788
TITLE: An analytical evaluation of anhydrosugar polymerizations
AUTHOR(S): Ito, Hiroshi; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, USA
SOURCE: Journal of Polymer Science, Polymer Chemistry Edition (1978), 16(9), 2217-24
CODEN: JPLCAT; ISSN: 0449-296X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In the polymerization of 1,6-anhydro-2,3,4-tri-O-(p-methylbenzyl)-β-D-glucopyranose (I) [10548-46-6] with 1,6-anhydro-2,3,4-tri-O-benzyl-β-D-glucopyranose (II) [41538-33-4] in the presence of PF5, the reactivity ratios were 1.25 ±

0.25, (calculated by the Mayo and Lewis procedure), representing azeotropic polymerization The anal. of the copolymn. system by the linear method proposed by J. Kelen and F. Tudos (1975) confirmed that true polymerization occurs in the system; the classical polymerization theory adequately describes the polymerization mechanism. Phys. properties of I-II copolymers indicated a highly stereoregular structure.

L9 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1977:536198 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 87:136198
TITLE: Synthesis of linear stereoregular glucomannan heteropolysaccharides
AUTHOR(S): Kobayashi, Kazukiyo; Eby, Ronald; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, USA
SOURCE: Biopolymers (1977), 16(2), 415-26
CODEN: BIPMAA; ISSN: 0006-3525
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Stereoregular α-(1→6) linked glucomannans were prepared by Lewis acid-catalyzed copolymn. of anhydro sugar derivs. followed by debenzylation. The products were characterized for mole fraction of the individual monomer, and sequence lengths were calculated from copolymn. data. The viscosity, sp. rotation, and 13C NMR spectra were correlated with the structure of the various copolymers.

L9 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1977:536176 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 87:136176
TITLE: Copolymerization of anhydroglucose and anhydromannose derivatives: structure, reactivity, and conformational analyses
AUTHOR(S): Kobayashi, Kazukiyo; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, USA
SOURCE: Journal of Polymer Science, Polymer Chemistry Edition (1977), 15(4), 913-26
CODEN: JPLCAT; ISSN: 0449-296X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,6-Anhydro-2,3,4-tri-O-(p-methylbenzyl)-β-D-glucopyranose and 1,6-anhydro-2,3,4-tri-O-benzyl-β-D-mannopyranose underwent PF5 catalyzed copolymn. with calculated reactivity ratios of 0.90 and 11.5, resp. Conformational anal. of anhydro sugar polymerization explained the reactivity differences in the monomers and their derived cations. The products of the reactions were stereoregular polymers.

L9 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1973:453890 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 79:53890
TITLE: Copolymerization of 1,6-anhydroglucose and 1,6-anhydromaltose derivatives
AUTHOR(S): Lindenberger, William H.; Schuerch, Conrad
CORPORATE SOURCE: Coll. Environ. Sci. For., State Univ. New York, Syracuse, NY, USA
SOURCE: Journal of Polymer Science, Polymer Chemistry Edition (1973), 11(6), 1225-35
CODEN: JPLCAT; ISSN: 0449-296X

DOCUMENT TYPE: Journal
LANGUAGE: English
AB In the copolymn. of 1,6-anhydro-2,3,4-tri-O-(p-methylbenzyl)-β-D-glucopyranose (I) [41538-33-4] with 1,6-anhydro-2,3-di-O-benzyl-4-O-(2,3,4,6-tetra-O-benzyl-α-D-glucopyranosyl)-β-D-glucopyranose (II) [29325-33-5] to give synthetic dextrans, the reactivity ratios were rI = 1.91+-0.35 and rII = 0.28 +- 0.25 and rI = 2.21 +- 0.15 and rII 0.21 +- 0.10 for 10 and 20 mole % concns. of phosphorus pentafluoride [7647-19-0] catalyst, resp. Copolymer intrinsic viscosities were 0.05-0.51 dl/g (CHCl3, 25.deg.).

L9 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1973:405627 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 79:5627
TITLE: Synthetic polymers, biopolymers, and block polymers
AUTHOR(S): Szwarc, Michael; Schuerch, Conrad
CORPORATE SOURCE: Coll. For., State Univ. New York, Syracuse, NY, USA
SOURCE: Polym. Biol. Syst., Ciba Found. Symp. (1972), 7-22. Assoc. Sci. Publ.: Amsterdam, Neth.
CODEN: 26RFA4
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Stereoregular polymerization was reviewed, stereospecificity discussed, with emphasis on anhydro sugars, especially synthetic linear polysaccharides of uniform structure, e.g. dextran [9004-54-0], with optical and biol. activity. The principles of mesomorphism in block polymers were also discussed.

L9 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1973:43926 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 78:43926
TITLE: Preparation and condensation of D-glucopyranose N-phenylcarbamates and N-methyl-N-phenylcarbamates
AUTHOR(S): Eby, Ronald; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. For., Syracuse Univ., Syracuse, NY, USA
SOURCE: Carbohydrate Research (1972), 25(1), 133-42
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Tris- and tetrakis(N-phenylcarbamate) and -N-methyl-N-phenylcarbamate derivs. of Me α-D-glucopyranoside were prepared and found resistant to acid hydrolysis. Alcoholysis and hydrolysis of the corresponding derivs. of cellulose gave oligomeric products and some loss of protecting groups. The fully substituted derivs. of benzyl β-D-glucopyranoside were resistant to hydrogenolysis. D-Glucopyranose 2,3,4-tri-O(N-phenylcarbamate) and -(N-methyl-N-phenylcarbamate) were prepared from 1,6-anhydro-β-D-glucopyranose and, on treatment with phosphoric anhydride, gave in the first case a crosslinked polymer with a small percent of P and in the second one a monomeric diphosphate. The reported method for polymerizing D-glucopyranose 2,3,6-tris-O-(N-phenylcarbamate) was not general.

L9 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1971:552152 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 75:152152
TITLE: Preparation of high molecular weight 2,3,4-tri-O-benzyl-[1.far.6]-α-D-gluco- and -galactopyranan and [1.far.6]-α-D-glucopyranan
AUTHOR(S): Schuerch, Conrad; Uryu, Toshiyuki
CORPORATE SOURCE: Coll. For., State Univ. New York, Syracuse, NY, USA

SOURCE: Macromolecules (1971), 4(3), 342-5
CODEN: MAMOBX; ISSN: 0024-9297
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Phosphorus pentafluoride was a better polymerization catalyst for 1,6-anhydro-2,3,4-tri-O-benzyl-β-d-glucopyranose than an acetyl fluoridephosphorus pentafluoride complex, since the AcF acted as a chain transfer agent. Traces of a volatile hydroxylic solvent strongly adsorbed on the monomer caused some catalyst deactivation, but could be removed by recrystn. from CH2Cl2 or petroleum ether. The polymerization rate was increased by running polymns. at - 55 to - 60° instead of at - 70° with no loss of stereoregularity. Yields of 97% were obtained in 3 hr with 0.52 mole % catalyst, compared to 92% in 4 hr with 0.26 mole % catalyst. The average d.p. values for the glucose and galactose derivs. reached 900 and approx. 5008, resp. Free polysaccharides having d.p. 100-250 (unfractionated) resulted from 3-4 chain breaks during debenzylation.

L9 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1971:3814 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 74:3814
TITLE: Polymerization of a cellobiose derivative to comb-shaped oligosaccharides
AUTHOR(S): Masura, Vlado; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. Forest., Syracuse Univ., Syracuse, NY, USA
SOURCE: Carbohydrate Research (1970), 15(1), 65-72
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The Lewis acid-catalyzed polymerization of 1,6-anhydro-2,3-di-O-benzyl-4-O-(2,3,4,6-tetra-O-benzyl-β-D-glucopyranosyl)-β-D-glucopyranose (hexabenzyl-1,6- anhydrocellobiose) gave products of number average mol. wts. of 6-7 + 103 and sp. rotations as high as 80° (CHCl3). Variations in reaction conditions affect the mol. weight and optical rotation of products. Conditions giving maximum stereoregularity and mol. weight are similar to those observed for polymerization of the corresponding maltose derivative Debenzylation of the oligomers yielded nondialyzable, hydrated, comb-shaped oligosaccharides, of [α]25D 77.8° (water; observed) or [α]25D 84.3° (water; calculated for anhydrous weight). The cellobiose and maltose oligosaccharides contain 1.5 mol. H2O for each repeating disaccharide unit. The products of highest optical rotation are highly stereoregular.

L9 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1970:477504 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 73:77504
TITLE: Preparation of comb-shaped polysaccharides by polymerization of a maltose derivative
AUTHOR(S): Veruovic, Budimir; Schuerch, Conrad
CORPORATE SOURCE: Coll. of Forest., State Univ. of New York, Syracuse, NY, USA
SOURCE: Carbohydrate Research (1970), 14(2), 199-206
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The Lewis acid-catalyzed polymerization of 1,6-anhydro-2,3-di-O-benzyl-4-O-(2,3,4,6-tetra-O-benzyl-α-D-glucopyranosyl)-β-D-glucopyranose (1,6- anhydromaltose hexabenzyl ether) gave products of number-average mol. wts. to .apprx.14,000 with sp. rotations as high as +96-7°. Reaction conditions affect the mol. weight and optical rotation of the products. Debenzylation of the highest-mol.-weight products with the largest optical rotation gave hydrated,

comb-shaped polysaccharides, [α]25D 174° (H2O free [α]25D 189°), which are highly stereoregular in the main chain (predominantly α-D linkages in both the main and branch chains).

L9 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1970:445741 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 73:45741
TITLE: Chemical synthesis and properties of stereoregular poly-α-(1.far.6')- anhydro -D-galactopyranose
AUTHOR(S): Uryu, Toshiyuki; Libert, Hermann; Zachoval, Jaromir; Schuerch, Conrad
CORPORATE SOURCE: Coll. of Forest., State Univ. of New York, Syracuse, NY, USA
SOURCE: Macromolecules (1970), 3(3), 345-9
CODEN: MAMOBX; ISSN: 0024-9297
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A third highly stereoregular α-(1 → 6)-linked polysaccharide was prepared by PF5-catalyzed polymerization of 1,6-anhydro -2,3,4-tri-O-benzyl-β-D-galactopyranose. For optimum results, a higher temperature (-60°) and higher concentration of monomer is necessary than has been used to polymerize the corresponding glucose and mannose derivs. The resulting polymer, [α]25D 103-5° (CHCl3), was debenzylated to polysaccharide, [α]25D 219° (corrected to theoretical C content: 10% LiOH 0.5% borate). The polysaccharide is insol. in all solvents except aqueous LiOH and borate mixts. and HCONMe2-N2O4. Periodate oxidation demonstrates that this polymer is as stereoregular as the previously synthesized glucan and mannan and is of pure α configuration.

L9 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1970:21863 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 72:21863
TITLE: Catalyzed polymerization of 1,2-anhydro-3,4,6-tri-O-acetyl-α-D-glucopyranose
AUTHOR(S): Zachoval, Jaromir; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. of Forestry, Syracuse, NY, USA
SOURCE: Journal of Polymer Science, Polymer Symposia (1969), No. 28, 187-195
CODEN: JPYCAQ; ISSN: 0360-8905
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The polymerization of Brigl's anhydride, 1,2-anhydro -3,4,6-tri-O-acetyl-α-D-g lucopyranose, proceeds readily at -100 to +25° when catalyzed or initiated by Lewis acids or carbonium ions. The products generally consist of a sol fraction of number average d.p. three to five and sometimes a gel fraction. The latter appears to be crosslinked through ortho acetate structures. Usually, the soluble products exhibit a high pos. optical rotation indicating a predominance of α linkages. The product with highest optical rotation, [α]20D 186.5°, was obtained by catalysis with BF3.Et2O in CH2Cl2 at 0°. In most systems, the mol. weight and the optical activity of products showed variations but no significant trends with changes in temperature of polymerization Reaction probably proceeds by growth on a carbonium ion in an ion pair.

L9 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1969:106798 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 70:106798
TITLE: Steric control in the polymerization of 1,6-

anhydro-β-D-glucopyranose derivatives
AUTHOR(S): Zachoval, Jaromir; Schuerch, Conrad
CORPORATE SOURCE: Univ. of Syracuse Coll. of Forestry, Syracuse, NY, USA
SOURCE: Journal of the American Chemical Society (1969), 91(5), 1165-9
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Poly[O-(1 → 6)-2,3,4-tri-O-benzyl-α-D-glucopyranosyl-2,3,4-tri-O-benzyl-D-glucopyranose] is produced at highest d.p. and stereoregularity by treatment of the corresponding 1,6-anhydro sugar derivative with low concns. (2.5 mole %) of PF5 in CH2Cl2 at -78°. The use of other solvents or additives or higher concns. of catalyst or in situ generation of the catalyst from silver salts tends to result in the formation of lower mol. weight polymers with minor amts. of configurational imperfections. A few other fluorinecontg. Lewis acids or cations with fluorine-containing gegenions produce essentially stereoregular polymers. The use of higher temps. or gegenions that do not contain fluorine results in production of polymers of random configuration. Loss of stereospecificity apparently results from the use of conditions which convert the propagating site from trialkyloxonium ion into a glycosyl carbonium ion. In the case of esters, the cations are probably stabilized by C-2 ester participation. The anhydro sugar triacetate and its cation are less reactive than the anhydro sugar ethers and their cations. Therefore, the esters are polymerizable only at higher temps. and produce low mol. weight random polymers.

L9 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1967:508892 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 67:108892
TITLE: Chemical synthesis of a dextran model
AUTHOR(S): Ruckel, Erwin R.; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. of Forestry, Syracuse, NY, USA
SOURCE: Biopolymers (1967), 5(6), 555-23
CODEN: BIPMAA; ISSN: 0006-3525
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polymerization of 1,6-anhydro-2,3,4-tri-O-benzyl-β-D-glucopyranose with PF5 in H2CCl2 solution at -78° gives, after debenzylation (reduction by Na in liquid NH3), an α-D-(1 → 6)-linked glucan in 80-85% yield. The d.p. in the unblocked polymer ranged 220-225 with mol. weight 32,400 to 36,500 and [α]25D 200° (c 1.5, H2O). Satisfactory elementary analyses as well as x-ray pattern and ir spectrum are reported. N.M.R. spectra in D2O showed proper integral ratios of 6 ring H's and 1 anomeric H with the C-1 equatorial proton at δ = 5.05 ppm, indicative of an α-D-linkage. No C-1 axial proton was found as in the naturally occurring β-D-linked dextrans. Enzymic analysis confirmed the α-D-(1 → 6) linkages in this synthetic glucan.

L9 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1966:438743 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 65:38743
ORIGINAL REFERENCE NO.: 65:7256g-h,7257a-b
TITLE: Chemical synthesis of a stereoregular linear polysaccharide
AUTHOR(S): Ruckel, Erwin R.; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. of Forestry, Syracuse, NY
SOURCE: Journal of the American Chemical Society (1966), 88(11), 2605-6
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal

LANGUAGE: English
AB The first chemical synthesis of a linear polysaccharide is described. 1,6,-Anhydro-2,3,4-tri-O-benzyl-β-D-glucopyranose in CH2Cl2 was treated at -78° with PF5 using standard high vacuum techniques for handling the catalyst and the polymerization reaction. Use of 10-20 mole-% catalyst: monomer, and 20-30% concns. of monomer resulted in the formation of a polymer of average mol. weight (.hivin.M) 42,000-76,600, and intrinsic viscosity 0.25-0.38. The polymer in (MeOCH2)2 was added to 7-fold excess Na in liquid NH3, the mixture stirred 1 hr., an equal volume of NH4Cl added and the solvents removed with a stream of N, the solids slurried with CH2Cl2, separated, and dissolved in H2O, and the solution dialyzed and freeze-dried to give 80-5% dextranlike polymer which retained 0.5 mole H2O per anhydroglucose unit on drying. Comparison with viscosities of natural dextrans indicated .hivin.Mv 32,400-36,500 or .hivin.d..hivin.p.v, 200-25. After removal of a low mol. weight fraction by EtOH precipitation, the dextran had [α]25D 196-200° (H2O), similar to the values for near-linear dextrans. Ir and N.M.R. spectra indicated that β-D-glucosidic linkages were absent.

L9 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1966:438728 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 65:38728
ORIGINAL REFERENCE NO.: 65:7253d-f
TITLE: Preparation of high polymers from 1,6-anhydro-2,3,4-tri-Osubstituted β-D-glucopyranose
AUTHOR(S): Ruckel, Erwin R.; Schuerch, Conrad
CORPORATE SOURCE: State Univ., Syracuse, NY
SOURCE: Journal of Organic Chemistry (1966), 31(7), 2233-9
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Cationic polymerization of three 1,6-anhydro-2,3,4-tri-O-substituted β-D-glucopyranose monomers (methyl, ethyl, and benzyl) was successful with Lewis acid catalysts and resulted in highly stereoregular polymers with degrees of polymerization as high as 300. All polymerizations were performed by using high purity monomers and high vacuum technique. Optimum conditions of reaction included low temperature to avoid chain transfer and relatively high concns. of PF5 as catalyst. The optimum catalyst concentration varied with monomer. A trialkyl oxonium ion mechanism is postulated for the polymerizable monomers. The polydispersity of the polymers appears to reflect both variable initiation and propagation rates. The latter may be caused by differences in counter ion. PF5 failed to polymerize 2,3,4-tri-O-acetyl-β-1,6-anhydro-D-glucose. Instead, a stable catalyst-monomer complex formed which precipitated from solution at high catalyst concentration 1,6-Anhydro-2,3,4-tri-O-trifluoroacetyl and 2,3,4-tri-O-tri-methylsilyl monomers failed to develop the yellow-green color observed during all successful polymerizations and which is believed to be characteristic of the reactive oxonium ions. Failure for a monomer to polymerize appears, therefore, to be the result of competition for the Lewis acid by nonpolymerizable functional groups in some cases, and in others steric or electronic effects.

L9 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1966:36549 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 64:36549
ORIGINAL REFERENCE NO.: 64:6823f-g
TITLE: Polymerization of 1,4-anhydro sugar derivatives
AUTHOR(S): Kops, Jorgen; Schuerch, Conrad

CORPORATE SOURCE: State Univ. of Forestry, Syracuse Univ., Syracuse, NY
SOURCE: Journal of Polymer Science (1965), No. 11(Pt. C), 119-38
CODEN: JPSCAU; ISSN: 0022-3832
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,4-Anhydro-2,3,6-tri-O-methyl-D-galactose (I) and 1,4-anhydro-2,3-di-O-methyl-L-arabinose (II) were prepared Polymerization of I and II was carried out in a sealed glass apparatus at 10-4 mm. and 50 to -97°. Solvents used were CH2Cl2, SO2, and benzene. Lewis acids were used as catalysts. Lower polymerization temperature increased the yield and polymer chain length. High-mol.-weight polymers of d.p. 90 were white amorphous powders, while low-mol.-weight polymers were tacky resins. Films could be formed from polymers of d.p. >40. The chain propagation of I and II proceeds with 5- and 6-membered ring opening leading to a mixture of furanosidic and pyranosidic units in the polymer backbone.

L9 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1962:436561 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 57:36561
ORIGINAL REFERENCE NO.: 57:7355b-d
TITLE: Addition polymerization of anhydro sugar derivatives. V. Preparation and attempted polymerization of various levoglucosan derivatives
AUTHOR(S): Mian, A. Jabbar; Quinn, Edwin J.; Schuerch, Conrad
CORPORATE SOURCE: Syracuse Univ., Syracuse, NY
SOURCE: Journal of Organic Chemistry (1962), 27, 1895-6
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB cf. CA 56, 11682g. Levoglucosan (I) (10 g.) suspended in 25 ml. Ac2O at 0° was nitrated with 20 ml. concentrated HNO3 in 50 ml. Ac2O, the mixture allowed to stand 1 hr., poured into 1:1 ice water-EtOAc, the layers separated, the EtOAc washed with NaHCO3 and H2O, dried (Na2SO4), and the EtOAc evaporated to give levoglucosan 2,3,4-trinitrate (II), m. 94-5° (EtOAc), [α]2D0 -74° (c 2.7, CHCl3). I (10 g.) in 25 ml. C5H5N was treated with an ice cold solution of 35 g. MeSO2Cl in 10 ml. CHCl3, the mixture allowed to stand at 0° 1 hr., 5 ml. H2O added, the solution allowed to stand 30 min., CHCl3 added, the layers separated, the CHCl3 washed (ice water, 2% H2SO4, NaHCO3 solution, and H2O), dried (Na2SO4), and evaporated to give the 2,3,4-tri-Omethylsulfonyl derivative (III), m. 170-1°, [α]2D0 -3.2° (c 2.9, Me2CO). Attempts to polymerize II and III, as well as the tri-O-methyl and tri-O-acetyl derivs., with a variety of catalysts and polyfunctional initiators gave only starting material or decomposition products. It was postulated that the unreactivity was due to steric hindrance.

L9 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1962:60804 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 56:60804
ORIGINAL REFERENCE NO.: 56:11682f-i,11683a-c
TITLE: Addition polymerization of anhydro sugar derivatives. III. 1,6-Anhydro -β-D-galactopyranose and its 2-O-methyl ether
AUTHOR(S): Bhattacharya, Anil; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. of Forestry, Syracuse, NY
SOURCE: Journal of Organic Chemistry (1961), 26, 3101-4
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal

LANGUAGE: Unavailable
AB cf. CA 55:13980c. The polymerization of 1,6-anhydro -β-D-galactopyranose (D-galactosan) (I) to high mol. weight branched polysaccharides was described. The optical rotation of the product showed the presence of a mixture of α and β linkages. Periodate oxidation indicated a product with 43 of 100 units unsubstituted on the secondary hydroxyls, 56 substituted on C-2 or C-4, and only 1 unit resistant to periodate (substituted on C-3 or disubstituted). The 2-O-Me ether (II) of D-I was very resistant to polymerization, presumably because transformation of the 1,6-anhydro ring to the 1,2-anhydro ring was impossible. The mechanism and results were discussed. D-I, m. 223-4°, [α]23D -22°, was prepared by the pyrolysis of meCH(OH)-CO2H.H2O (Hann and Hudson, CA 37, 893), and II, m. 115-16°, [α]D -31.5°, was prepared by methylation (Me2SO4) and hydrolysis of 1,6-anhydro-3,4-O-isopropylidene-β-D-galactose (Reeves, CA 44, 120i). Polymerizations were carried out on a somewhat smaller scale than previously described (CA 54, 24418g) for 1,6-anhydro-β-D-glucopyr-anose (levoglucosan), and polymer pptns. and isolations similarly effected. In the case of II, however, EtOH failed to precipitate a polymer and the aqueous solution was diluted with 10 vols. Me2CO, the turbid liquor centrifuged, the precipitate and supernatant solution freeze-dried, and the products examined "Poly-galactosan" (III) (400 mg.) shaken 30 min. with 5 ml. pyridine, treated with 4 ml. Ac2O, heated 12 hrs. on a steam bath, cooled, poured onto crushed ice, the precipitate washed to neutrality, and dried gave the product (whose infrared spectrum showed a very small hydroxyl peak), which was used for number average mol. weight determination Oxidation of III was carried out with
0.1M NaIO4 and both NaIO4 consumption and HCO2H liberation measured iodometrically, D-I showed peaks at 807, 845, 847, 890, 915, 936 cm.-1 while II had peaks at 752, 804, 850, 880, 909 cm.-1 The infrared spectrum of III was very diffuse. The polymers were hydrolyzed with 0.5N H2SO4 (4 hrs. on a steam bath) and the resulting hydrolyzates examined by paper chromatography. III was completely hydrolyzed to D-galactose. The following results were obtained in the polymerization (carried out at 110° with a 1:50 molar ratio of catalyst-monomer) [monomer, catalyst, time (hrs.), and % yield, [α]24D, number average mol. weight, weight average mol. weight, and color of polymer given]: D-I, ClCH2-CO2H (IV), 15, 76, 81.8°, 1800 (the acetylated polymer had number average mol. weight 3520), 22,500, white; D-I, CF3CO2H, 6, 60, 93°, -, -, dark brown; D-I, H3PO2, 15, 50, 96.5°, -, -, brown; D-I, ZnCl2, 4, 45, 115.5°, -, -, brown-black; II, IV, 58, 3, 39.5°, 550, 22830, brown (in this experiment a 95% Me2CO soluble fraction, largely unchanged II, was obtained).

L9 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1960:128230 HCAPLUS <<LOGINID::20070227>>
DOCUMENT NUMBER: 54:128230
ORIGINAL REFERENCE NO.: 54:24418g-i
TITLE: Addition polymerization of anhydro sugar derivatives. I. A polyanhydroglucose
AUTHOR(S): Carvalho, Jose da Silva; Prins, Willem; Schuerch, Conrad
CORPORATE SOURCE: State Univ. Coll. of Forestry, Syracuse, NY
SOURCE: Journal of the American Chemical Society (1959), 81, 4054-8
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB 1,6-Anhydro-β-D-glucopyranose (levoglucosan) (I) and ClCH2CO2H (10.2-21.4 mmoles/mole I) heated in an evacuated sealed tube 0.5-20 hrs. at 110-127°, the product (1-2 g.) dissolved in 15 ml.

H2O containing Na2CO3, and precipitated with 85 ml. EtOH gave 28-71% polyanhydro-D-glucose (II). Weight-average mol. wts. determined by a light scattering method varied from 4235 to 309,000 in different prepns. In some expts., solvents (Me2SO and tetramethylene sulfone) and other catalysts [HCO2H, AcOH, HCl, (CO2H)2, H3PO4, or ZnCl2] were used. Fractionation was accomplished by stepwise dilution of aqueous solns. of II with EtOH and Me2CO. An unfractionated sample consumed 1.41-1.44 moles IO4- and gave 0.47-0.54 mole HCO2H/glucose unit. Results with fractions of this sample obtained with EtOH were not greatly different. An attempt to relate these data with branching of the polymer was made. The rotation of representative prepns., [α]D22 91 ± 5° (c 2.5-5, H2O), indicated predominantly α-D-linkage of units.